# American MILK REVIEW

AMERICAN MILK REVIEW BUTTER REVIEW EGG & POULTRY REVIEW

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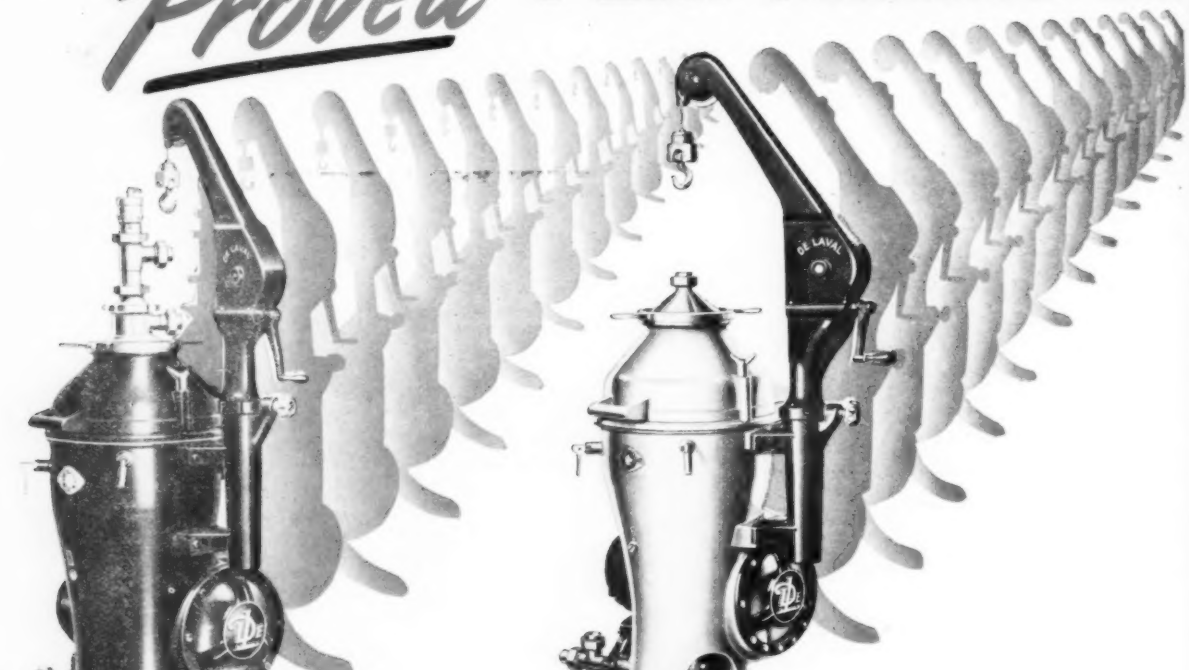

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**CREAM SEPARATORS and MILK CLARIFIERS**

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# AMERICAN MILK REVIEW

Volume 7 NEW YORK, AUGUST, 1946 No. 8


# OPA Resumes Activities

## Senate-House Conference Measure Approved by Both Houses and the President — Agency's Powers Sharply Curtailed — Three-Man Board in Virtual Control

**(By a Review Staff Representative)**

WASHINGTON, D. C.—Naturally all interest has lately centered in dairy and other agricultural product circles in the appointments to the three-man decontrol board which is to exert such authority over operations of the OPA during the coming year. General sentiment, not only throughout the dairy and poultry trade but in the country as well, seems to be favorable to the appointees announced by President Truman.

The President signed "reluctantly" the House Senate conference committee bill extending OPA for another year beyond June 30 as soon as Congress had approved the measure.

The board is composed of Roy L. Thompson, professor of economics and head of the Federal Bank of New Orleans as chairman; George H. Mead, chairman of the board of the Mead Paper & Pulp Company of Dayton, Ohio, who was formerly a member of the WLB; and Daniel W. Bell, who had previously served as Acting Director of the Budget and Undersecretary of the Treasury.

Without discounting the abilities of either Chairman Thompson or Mr. Mead, it is the appointment of a political neutral and man of proven capabilities in the public service such as Mr. Bell, that has won widest acclaim.

### Terms of Measure

As has been pointed out, the board's first important task will be to rule, after public hearing and after being guided by a stated three-point standard, whether price ceilings should be reinstated on dairy products, meats, grains, cottonseed and soybeans and many products made therefrom. No price controls may be established before August 21.

Under the present schedule announced by the board the sessions will start August 12 on grains, on livestock and related products August 13, on cottonseed and soybeans and related products on August 14, and on milk and all dairy products on August 15. Regulations governing the presentation of testimony at these hearings in all details were presented by the board in a notice published in the August 6 issue of the *Federal Register*.

In the case of poultry, eggs, tobacco and petroleum and products of each, no controls may be established at all unless the board so rules. Reimposition of price controls in some form on the dairy, meats and related groups is automatic August 21 unless board action otherwise is taken in the meantime.

The three-point stated guide to board action follows:

Ceilings may be restored only if it is found that prices have risen "unreasonably" above the levels in effect on June 30 plus the then subsidy; that the commodity in question is scarce and its regulation is "practicable and enforceable"; and that the public interest will be served by introducing such recontrol.

### Board Promptly Confirmed

As expected, Senate confirmation of the board was almost immediately provided, and organizational procedures got under way at once.

Naturally, the time between now and August 20, by when some board action must be taken if decontrols are to become effective, is not long. Thus, it is greatly to be hoped that the board's first meetings will be inaugurated as soon as possible and its organization effected.

In the case of poultry and eggs, under existing supply-demand relationships and under the terms of the OPA extension measure as noted above, it seems most unlikely that any further price ceiling arrangements will be attempted. Naturally news of final decision in this matter will be awaited with close attention by all industry elements.

What will happen in the case of dairy products cannot yet even be guessed at.

It must be remembered that the board has complete control, in consultation with other governmental authorities, of the allocation of the billion-dollar produce subsidy authorization which is a part of the measure. Of this the major portion is allocated for agricultural products.

### Sound Actions Foreseen

Present indications strongly point toward the soundest possible moves, — under the final decision for a restricted OPA continuation for another year,—by the three-man group which will be in top control of all activities. For example, Professor Thompson, the chairman, has been quoted in the press as saying, "The quicker we can find the possibility of getting things out from under price controls the sooner we can arrive at the situation we are looking for. If we can get production going at the proper rate, competitive forces can bring prices into proper relationships and remove the necessity of governmental control."

This attitude is highly encouraging in all quarters who view the importance of attempted peace-time price control effort elimination as a major item. It strongly echoes the sound statement, lately voiced in a quarter which we have not been able to identify, that fifty million housewives can do a better job in controlling prices on all our products than 40,000 OPA employees.

### NEW PASTEURIZING PLANT

Neosho, Mo.—Everett Hundley and L. J. Tipton have opened their new and modern milk pasteurizing and dairy products plant here.

# Dealers Face Squeeze

**Recent Boost in Paying Prices to Milk Producers Not Compensated by Increases in Selling Rates**

Many milk distributors are faced with a "squeeze" resulting from the recent OPA increase of 40c per hundredweight to dairy farmers for milk and only a 1c retail per quart increase. This is due to the fact that margins are already low and commissions to routemen and supervisors have an escalator effect when retail prices go up, according to reports received by the Milk Industry Foundation.

A milk distributor in a medium sized middle western city reports:

"Up to now we have been selling milk for 13 cents a quart. If you want to find our margin of profit, put down a decimal point, add three or four ciphers to the right and then put down 1. After this new price increase, we will actually be losing money. In return for the one cent a quart rise in the retail price, we must pass back to the producers 40 cents per hundred pounds of milk. Now, there are about 46 quarts in a hundredweight, not counting spoilage and wastage. At most this leaves us with a six cent gain per hundred pounds of milk. But our routemen and supervisors get a 15 per cent commission, based on the retail price, or 6.9 cents of the 46 cent total increases. So, we lose on the deal."

**Another Distributor Reports**

Another milk distributor in a larger city in the middle west reports:

"Figures show that on a 46 cents per cwt. increase to milk producing farmers, which is equivalent to 1c per quart, the mere increase of retail price of 1c per quart does not recoup the milk distributor for his payment of 46c per cwt. to the farmer.

"We pay routemen a flat daily rate plus 11 per cent commission on their sales. Relief men and supervisors are paid the average of the routemen plus a fixed amount. The two commissions amount to about 15 per cent on sales. Thus, sales people take about 15 per cent or 6.9 per cwt. of a 46c per cwt. increase.

"The normal shrinkage is figured at 2½ per cent and, of course, this is automatically increased. This would amount to 1.15c per cwt. Payroll taxes plus State Workmen's Compensation (based on payroll) equal a 1 per cent increase on sales or .46 of a cent per cwt. Bad debts are automatically increased, being 1 per cent or .46 (46/100) per cwt. Thus, these automatic increases amount to 19½ per cent or 9c per cwt. on each 46c increase in consumer price.

"In addition to automatic increases, there are others that must follow. For example, a 1c increase to the consumer raises routemen's earnings 77c per day. This would call for similar increases for all other employees. If the amount were just equal to that of the routemen, the increase would make an additional 5c per cwt."

**Pay Increase Record**

Surveys show that pay increases to employees in the fluid milk distributing industry in most markets since 1942 have risen more than 50 per cent. Pay increases also are substantially greater than the increase in cost of living in many markets. Thus, it seems obvious that distributors of milk will have to consider widening their margins or re-adjusting commission schedules if they are to avoid a bad "squeeze."

Of the two remedies, since pay increases are well above the increase in cost of living, and since industry has a responsibility to consumers, the revisions of commissions would seem to be more desirable. In at least one market the adjustment of commissions was readily acceded to by the employees when the situation was fully explained to them.

## JULY FARM PRICES

Washington, D. C.—USDA officials reported here July 29 a jump of 26 points during the month ending July 15 in the country's average farm prices. This brings the level to 244 per cent of the 1909-1914 average. This is the largest gain ever recorded for any month within the 37 years during which the records have been kept. Part of the rise came from the end of subsidies on certain commodities with the recent temporary lapse in price controls on June 30.

Sharp gains in the farmers' prices for poultry, eggs, dairy products, meat animals, grains and cotton were stated to be the main influences in the general rise.

USDA at the same time reported that the parity index moved up 11 points as of July 15, to 199. This represents the formula figure which is designed to give farmers the purchasing power of a favorable base period, usually that of 1909-1914.

## DAIRY ADDS ICE CREAM BAR

Lakeview, Mich.—The new ice cream bar of the Lakeview Dairy was recently opened for business.

## OPERATE NEW PASTEURIZER

Leland, Mich.—Schneider and Sons Dairy near Lake Leelanau recently started operation of their new pasteurization plant.

# Butter Prices Rally

**Markets Recover Some Ground Lost After First Upturn—Retail Rates Held Down**

As noted elsewhere in this issue, the present schedule of procedure before the newly appointed three-man decontrol board, which will have virtual control of all major OPA activities during the coming year, calls for the initiation of public hearings on meats and dairy products, and other items in the same group, on August 12th.

It is understood that each item will be considered separately and that full information as to hearing procedures and conduct will be issued to producer, distributor and consumer groups well in advance of the inauguration of the sessions.

Under the present OPA extension act some form of price control automatically returns on dairy products and meats on August 21st unless the board acts otherwise in the meantime. The board has complete control, in consultation with other governmental authorities, of the allocation of the $1,000,000,000 producer subsidy authorization which is a part of the measure. Of this the major portion is allocated for agricultural products.

Meanwhile, butter market prices at terminal points and in the interior have recovered quite a bit from the decided slump which followed the initial advance after the July 1st termination of the previous OPA set-up.

**Producer Return Still Moderate**

At the present time actual terminal market values, however, still stand at or slightly below—on the average—the return which the dairy producer would have received for cream sold for churning at the previous OPA ceilings plus the then-existing federal subsidies if they had been continued.

Chain store retail prices, which gear the entire retail pricing set-up, have lately been held in extremely close relationship to wholesale costs. For example, major chains have lately been retailing butter in a range of 74@75c with some specials occasionally even lower. Among the independents a range of 74@82c seems to cover most pricing, some asking more. At these levels consumer buying interest has not been broad by any means, though it has picked up somewhat.

It must be emphasized that the overall butter supply is far short of anything resembling normal for the season, and that unless production trends change the outlook for available quantities in the coming fall and winter is extremely grim.

# Editorially Speaking....

### OPA Restored But Curbed

REINSTATEMENT of the Office of Price Administration, with its price control activities potentially very sharply curtailed, has at least clarified the situation to the extent that the country's economy can anticipate another full year of some form of price ceiling maintenance. To what degree and on what products this will be reimposed as of August 21 is still by no means clear.

Membership of the Board, which was promptly confirmed by the Senate, represents probably as good selection of impartial men of sound judgment, experienced in economic affairs, as could have been made. Initial expression from Chairman Roy L. Thompson is surely encouraging. He is quoted in the public press as having stated that the Board's intention will be to return all of our agricultural and industrial products to free and open uncontrolled marketing, price-wise, as rapidly as may be done.

Some discouragement is found among informed observers in the fact that, under the initial organizational procedures of the Board, top executives previously aligned with former OPA Administrator Chester Bowles have been renamed to important advisory posts.

This picture, however, may well be discounted when consideration is given to the general calibre of the three men in chief control of OPA activities. These include, in addition to Chairman Thompson,—who is a professor of economics and has served as head of the Federal Bank of New Orleans,—George H. Mead, chairman of the board of the Mead Paper & Pulp Co. of Dayton, Ohio, a former member of the WLB, and Daniel W. Bell, whose important and effective public service previously has included the posts of Acting Director of the Budget and Undersecretary of the Treasury.

Poultry and eggs, under the terms of the OPA extension measure, are not subject to recontrol unless the Board so rules after formal public hearing. In view of the fact that no date has as yet been set for such session, and in view of existing supply-demand relationships in these products, it seems highly unlikely that ceilings will be reimposed.

On dairy products, meats and items joined together in that group, the question is entirely different. On these, unless the Board acts otherwise, some form of price limitation and undoubtedly some return of producer subsidy payment is scheduled to be reimposed on August 21.

There is no way now of telling how or at what level this might be done. The Board has scheduled hearings on this group to start August 12 with grains, continue August 13 with livestock and its products, August 14 with cottonseed and soybeans and products made therefrom, and to wind up August 15 with milk and dairy products generally. In view of the shortness of the time involved, the Board has wisely requested submission by producer, distributor and consumer groups and individuals of concise written testimony at each session on each product, and elimination as far as possible of the presentation of oral argument.

With dairy products markets operating, even under the highly unnatural and uncertain conditions existing since OPA controls went out of the picture on July 1, in a manner which strikingly indicates the age-old effectiveness of the law of supply and demand, it is earnestly to be hoped that the Board will rule against the reimposition of attempted peacetime price controls.

It is obvious that no attempt would work toward the desired objective. It is equally obvious, and has so many times been proven, that any attempt in this direction would simply reintroduce disruptive arrangements between demand and supply, and reintroduce black marketing on all items of which the total quantity turned out would be inadequate to meet the overall call.

**HOLD YOUR**
**UNITED STATES BONDS**

### An Interesting Article

PRESENTED elsewhere in this issue of the "Review" is a timely consideration on the use of quaternary ammonium compounds in dairy plants by Dr. D. H. Jacobsen, Technical Advisor to the sales department of the Cherry-Burrell Corporation, which was read at a recent meeting of the Michiana Dairy Technology Club.

Due to the expanding use of some of these compounds as germicidal and sanitizing agents there is an increasing interest on the part of milk sanitarians, health officers and plant operators in this important subject. While the efficiency of chlorine solutions has been recognized for many years, attention is presently being directed toward "quaternaries" as having certain advantages over chlorine products with few disadvantages.

Dr. Jacobsen makes a careful and readily understandable analysis of quaternary ammonium compounds in relation to their use in dairy product plants, pointing out in an unbiased manner their advantages and disadvantages.

Study of this carefully developed paper will give a better understanding of these chemicals which seem to bid fair to win more widespread usage in the dairy field as germicidal and cleansing agents.

### Counteracting a Threat

TAKING COGNIZANCE of publicized reports of impending buyers' strikes against dairy products because of increased prices a group of cooperative organizations, Land O'Lakes Creameries, Inc., Twin City Milk Producers Association and the Minnesota Farm Bureau Federation, have launched a vigorous campaign designed to tell consumers the truth about the relationship between existing market prices of dairy products and the remuneration that dairy farmers receive for the raw material.

Spokesmen for the cooperatives mentioned repute any justification for a buyers' strike with authenticated claims that better-than-average dairy farmers receive less than 53 cents an hour for their labor at prevailing prices received for their dairy products. That the life of a dairy farmer is not to be envied the publicity points out such factors as the farmers' investment in cattle, build-


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ings, land, feeds and other items essential to modern dairying. Also emphasized are the working hours put in by dairy farmers without extra remuneration such as time-and-a-half for overtime.

In addition to making a factual and what should be a highly effective presentation of the case the sponsors have launched the campaign in a far-reaching and thorough manner through the well-known Campbell-Mithun advertising agency.

This campaign, coming right at a time when agitation for consumer strikes is starting, is timely indeed and should accomplish much in heading off unjustified antagonism toward the products of the dairy industry.

### Guard Against T-B Reactors

CAUTIONING farmers on the importance of having cattle replacements retested before adding them to their herds, the New Jersey Department of Agriculture points to a slight increase in the number of cattle reacting to the tuberculin test in that State. Some areas have been found to yield more reactors than other sections and in most instances the increase has been proportionately related to the number of new or inshipped cattle, the Bureau of Animal Industry discloses.

According to Dr. James W. Crouse, director of the Division of Animal Tuberculosis Control, the reactions are not occurring under similar circumstances, a factor which makes the sources of the infection more difficult to trace.

"Reactors have been disclosed not only in herds where many inshipped replacements have been added but also to a lesser degree in herds where few or no replacements were secured from outside sources. Consequently, it is felt that the infection may be attributed in most cases to newly-purchased inshipments," Dr. Crouse reports.

Although cattle importations are required to be tested by authorities before shipment to New Jersey, officials here believe that some animals may have been too hastily examined at the point of origin to qualify them for admittance. Particularly disturbing to New Jersey supervisors of animal health is the fact that occasionally animals infected with tuberculosis appear to be disease-free because no reaction is shown in the sixty-day guarantee period following admission to this State. For a period as long as twelve to eighteen months after entry, some of these animals evidenced reaction to a tuberculin retest, meanwhile having exposed other herd members to the infection.

Other factors, such as overcrowding of stables, shortage of help, improper care, unsanitary barns, poor feeds, and forced production, are cited as contributing causes for an increase in the number of animals reacting unfavorably to the check-up. However, the introduction of disease through herd additions seems the most likely reason for any rise in the number of reactions.

Dairymen, not only in New Jersey but elsewhere, are urged to take every precaution to prevent infection and to retest all replacements promptly. This simple safeguard, Mr. Crouse's report emphasizes, offers the most effective means of preventing losses from disease.

### Milk Featured At a Party

BABY BEACH PARTY at Beverly Hills, California—That's the title of the illustration shown on the front cover of this issue of the *"Review."* This photograph, reproduced through the courtesy of *Look* magazine, in which it appeared July 23, shows a party of robust young guests enjoying healthful, taste-appealing milk at a party spread out on the beach.

In this picture Alan Ladd's daughter, Ilana, is shown celebrating her third birthday with a number of her young friends. In addition to milk these youngsters were served other delicious dairy products, such as cheese and ice cream, at the party in quantities compatible with the capacity of their stomachs.

Once, again, *Look* magazine, with its millions of readers throughout the land, lends its influential support to the program advancing the healthfulness and enjoyment in consuming milk and dairy products. To publicity of this nature the dairy industry owes a sincere vote of thanks.

### CHEESE MARKET FIRM

As for some time, the pricing situation on all types of cheese continues irregular, though with a decidedly firm trend. Some sellers are holding to the previous sales levels while others are asking rates up to a point in instances 1@2c higher.

At New York natural Cheddars and Twins usually range 43½@45c at wholesale, while 5-lb. processed goes at 46@48c usually and domestic Swiss 52@58c.

Main controlling influence on terminal market pricing is the maintenance of an extremely firm situation on the Plymouth, Wisconsin Cheese Exchange, where latest ruling price on natural Cheddars and Twins was held at 40c with many unsatisfied bids.

USDA announced from Washington that the 40 per cent set-aside requirement of August cheese production for sale to government agencies had been cancelled. At the same time the Department announced that manufacturers and assemblers are expected to complete delivery of May and June set-aside obligations at a governmental paying rate of no more than the ceiling price in effect on June 30.

### $500,000 PLANT OPENED

Huntly, Ill.—The Dean Milk Plant, built and equipped at a cost of over a half millllion dollars was recently opened here. With a bottlIng capacity of 400,000 pounds of milk per eight hour day the new plant will make Huntly one of the most important dairy centers in this area.

### FOREMOST CONSOLIDATES

Jacksonville, Fla. – Stockholders of Foremost Dairies, Inc., at a special meeting recently, unanimously approved consolidation of five subsidiaries or affiliates into the parent company under a plan recommended by directors to simplify the corporate structure.

### FIRE DESTROYS DAIRY

Franklin, N. H.—The main barn and most milking equipment of the Franklin Dairy was destroyed by fire recently. The blaze was started by lightning and took firemen six hours to overcome. Fortunately the herds were in pasture at the time.

### UPSTATE PLANT DESTROYED

Andes, N. Y.—The Andes Cooperative milk plant was burned to the ground in a spectacular fire here recently. The local fire engine broke down and by the time neighboring town equipment arrived the fire had gained such headway it was impossible to control.

### WORK STARTS ON MILK PLANT

Akeley, Pa.—Roselakes Dairies, Inc., have started work on their new $70,000 milk plant here. When opened sometime early this fall it will give well over one hundred dairymen a new outlet for fluid milk to New York City. At present most of these have to make the long haul to the Bear Lake plant.

### DAIRY ADDS TO PLANT

Emporia, Kan.—The Victory Creamery Co. has taken over additional space in its own building. It is utilizing this room for a new drive-in loading dock, a new boiler and boiler room and a storage room. A new milk cooler has also been installed.

### FREDERICK DAIRY SOLD

The Excelsior Sanitary Dairy, largest in Frederick, Md., is reported to have been sold to Joseph Vona, until recently a major in the army engineers corps.

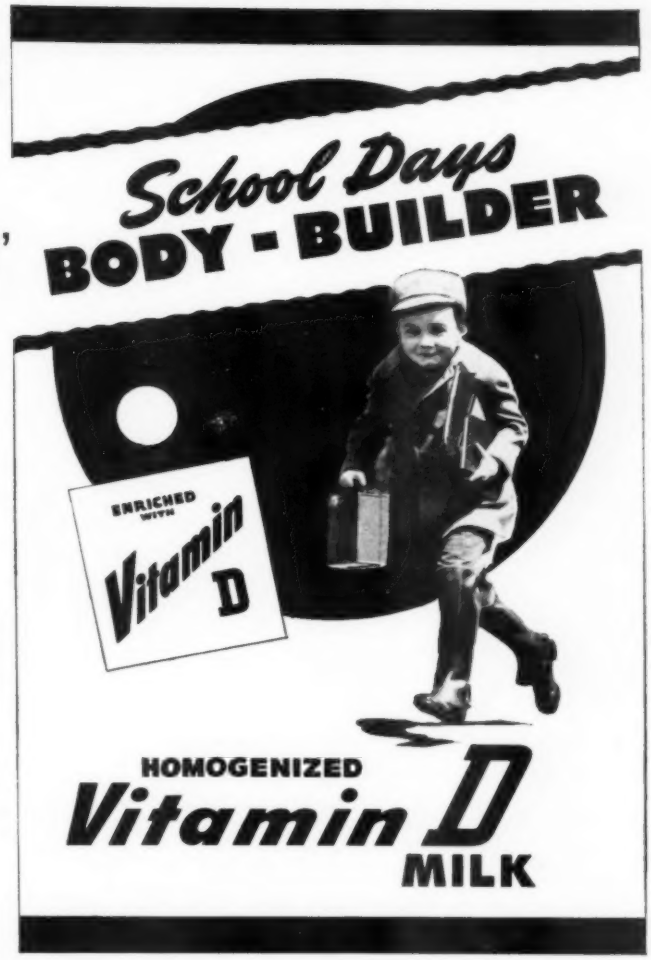
# NEW! TIMELY!

## THE "BACK TO SCHOOL" CAMPAIGN

●

**SALES-BUILDER FOR YOUR HOMOGENIZED**

## VITAMIN D MILK!




Every year about this time, millions of kids—milk-drinkers all—head back to the classrooms, an annual consumer movement that brings with it drastic changes in living, eating and buying habits.

### CASH IN NOW!

Now you can cash in on those changes by making use of the sales materials available in General Mills' new, timely "Back-to-school" promotion for better Homogenized Vitamin D Milk sales. Here is a promotion that has everything: timing, natural consumer interest, plenty of reason-why sales appeal. It is available now to dairies using, or who will use, ARPI Process Vitamin D for milk.

Here is a chance to tie in *your* Homogenized Vitamin D Milk with the school lunch program. Here is a chance to sell mothers once again on the need to serve your Homogenized Vitamin D Milk with every meal in the interest of her youngster's health. And, it is a chance to step out and get sales leadership and consumer acceptance for your Homogenized Vitamin D Milk.

### PREPARED BY EXPERTS!

Plan now to take advantage of this unusual sales opportunity. Send in the handy coupon below for your free presentation of the complete "Back-to-school" campaign—especially prepared by General Mills advertising experts, the results of years of experience in selling millions of dollars of food products to customers just like yours . . . promotion materials which, if properly handled, *will get sales results.*

The complete "Back-to-school" campaign contains attractive 4-color posters, with plenty of human-interest appeal; bottle collars; folders; newspaper ads; radio commercials—everything needed to make your back-to-school Homogenized Vitamin D Milk promotion a sales success . . . Don't wait—send the coupon today!

**CLIP AND SEND *NOW* FOR COMPLETE DETAILS**

General Mills, Inc. AMR-8-46
Special Commodities Division
80 Broad St.
New York 4, New York
Attention: L. J. WALSH

Count me in! Without obligation, I'd like a free presentation of your "Back-to-school" promotion, with its complete set of campaign materials available to users of ARPI Process Vitamin D Concentrate.

*Name* .....

*Dairy* .....

*City* ..... *Zone* .... *State* .....

# New Non-Chlorine Disinfectants*

## Advantages and Disadvantages of Quaternary Ammonium Compounds as Germicides for Dairy Plants Discussed at Recent Michigan Meeting

**(By D. H. Jacobsen, Technical Advisor to the Sales Department, Cherry-Burrell Corporation)**

FOR MANY YEARS the dairy industry has employed both heat and chemical sterilization for maintaining sanitary conditions on milk processing equipment. Chemical sterilization has involved chlorine products largely because of the characteristics of chlorine which make it particularly useful in dairies. Chlorine is a very efficient germicide and can be safely used on milk equipment because of the fact that it combines with milk proteins readily and under ordinary circumstances of use, does not affect the taste of the product.

Dr. D. H. Jacobsen

A new development in the field of chemical disinfection is the use of the synthetic products of the quaternary ammonium compound group. This group of compounds has germicidal properties and some are very good disinfectants. Those which have come to our attention are Roccal, Emulsept, Thoral, BTC and Hyamine 1622. They are described as quaternary ammonium compounds because of their molecular formula. They have definite wetting agent characteristics and produce foam when agitated in solution. They are also known as cationic wetting agents in contrast to the anionic wetting agents used in cleaning compounds.

Since chlorine sterilization has been recognized for so many years, we can perhaps bring out the characteristics of the quaternary ammonium compounds by comparison with chlorine compounds. Here we must specify the hypochlorite type of chlorine compounds which are most widely used in dairy plant work because of their rapid action and adaptability to plant processes. The organic type of chlorine compounds which are slower and less important in dairy plant use would not fit the comparisons in some cases.

### Advantages of Quaternaries

Among the advantages of the quaternary ammonium compounds are the following qualities which are important in dairy plants:

(a) Non-corrosive on common metals.
(b) Non-toxic.
(c) Stable under heat and over long periods of time in common dilutions.
(d) Non-irritating to the skin.
(e) Colorless and odorless in common dilutions.
(f) Rapid wetting and penetrating action.
(g) Relatively non-selective towards various types of bacteria.
(h) Surfaces may be rendered bacteriostatic, for some time after treatment.
(i) Not affected by hard water salts.

Although the factor of corrosion has been minimized by the increased use of stainless steel in dairy equipment, we have a certain amount of equipment in most dairy plants which can be damaged by corrosive sterilizing solutions. The chlorine sterilizers of the hypochlorite type have an alkaline reaction and long contact or improper use may result in corrosion. These new germicides are nearly neutral in reaction and are claimed to have no more corrosive effect than plain water.

### Toxicity Studies

Toxicity studies have shown that these products are not irritating to the skin in ordinary dilutions and are not poisonous. One of the common products offered to the trade has been fed in a 1-100 dilution to guinea pigs as the only source of fluid with no bad effects. Solutions of 200 PPM of the same product dropped in the eyes of rabbits produced little or no irritation.

One of the most interesting characteristics of these new germicides is their stability in ordinary atmosphere and also under heat. They are not lost on boiling in solution. Their strength is reduced very slightly on long standing even in diluted condition. This does not mean that they do not combine with organic matter such as milk solids but tests indicate that they are somewhat more stable than chlorine preparations in this respect.

In the dilutions commonly used for disinfection, these new germicides do not irritate the skin and leave no odor on the hands. This appears to be a valuable feature in some dairy uses where much hand work is involved as in farm dairies.

### Definite Wetting Properties

These germicides possess definite wetting or penetrating properties and can be compared with the well known wetting agents in this respect. One of the well known products on the market shows a reduction in surface tension to about half that of pure distilled water when diluted to 200 PPM. This is important from the standpoint of insuring contact with the bacteria carrying films on milk equipment.

Tests which have been made on various types of bacteria indicate that these compounds show less selective action than chlorine products. It is a well known fact that hpochlorites are less effective against the gram negative types such as *E Coli* than against the gram positive organisms. This feature is of value particularly for farm dairy use where the coliform organisms are a major problem.

Since the quaternary compounds are relatively stable, they can be expected to show a lasting germicidal action on surfaces treated with rinses or sprays. This bacteriostatic action is an advantage which is important on surface coolers and other exposed surfaces in the dairy plant.

No reaction with hard water salts is expected with these compounds except in cases when water carries a high silica content. The pH of solutions is neutral as contrasted with the alkaline reaction of most chlorine compounds. Much less trouble with liming of injectors on bottle washer lines might be expected with these products.

### Disadvantages

Most of the disadvantages which are noted in connection with the use of quaternary ammonium disinfectants arise from their newness in the field. Research and experience in use is limited at the present time. Most of the research to date has been along the line of germicidal action on laboratory cultures and toxicity studies. During 1945 a new organization known as the "National Sanitation Foundation" has been set up in the School of Public Health at the

*Talk delivered at Meeting of Michiana Dairy Technology Club, Feb. 12, 1946.

# "The bigger the family—the better the service"

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FIBRE DRUMS The Container Co., Van Wert, Ohio

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. . . and Continental *is* big! The Paper Division alone makes four distinct lines of packages . . . Mono nested and cylindrical containers, fibre drums and paper-and-metal cans. Whatever your product, you'll find a Continental container designed to meet your most exacting requirements.

For some time now we haven't been able to make enough containers to go around. But we have stuck to our policy, "the best in *quality*, the best in *service*." So when you plan ahead, think of Continental, packaging headquarters for industry.

University of Michigan. This organization supported by a number of dairy, food and drug organizations promises to assemble a great deal of good information in this field. Also experimental projects in the state colleges are under way and provide the information needed for developing the use of these products in dairy plants.

The cost of the new disinfectants at the present time is somewhat higher than equivalent concentrations of chlorine disinfectant. This is balanced to some extent by the higher stability and longer useful life of the new compounds. In other words, these compounds do not lose strength on exposure in solution as rapidly as the chlorine solutions.

At present the new compounds are available only as liquids but powdered products are under development. The objection to shipping and handling liquid products is, however, a disadvantage at present.

Since experimental work is lacking we find that Public Health officials have not developed standards for use and in some cases have not recognized the new products. For instance, they are widely used in some states while they are not recognized in others. In many cases it depends on the City Health Departments to give the final decision on their use in dairy plants and no state-wide control is indicated.

Tests for concentration of these products in use are not well known as yet and are being improved. These tests, however, are easily made and should not seriously interfere with their use.

The new germicides are not compatable with soap, hexameta phosphate or sodium metasilicate or with the anionic wetting agents. Therefore, care must be used in their application to prevent their neutralization by these products. This means careful rinsing before they are applied after cleaning with any of the above named products. Their germicidal action is, however, increased under alkaline conditions such as present on washed dairy equipment.

### Experimental Observations

Some interesting tests on milk can sterilization were reported in 1944 by two Canadian bacteriologists, Jamieson and Chan. These reports were published in the Canadian Dairy and Ice Cream Journal under the title "Supplementary Home Sanitation of Milk Shipping Cans." A preliminary survey of 354 factory washed cans showed that 93.7 per cent contained more than 40,000 bacteria per can which has been considered as an arbitrary maximum standard. These experiments involved rinsing cans which had been washed and steamed in the usual way with the sanitizing agents to be tested. The cans were held dry for 15 hours before rinsing. Four products were tested, two of which are members of the group referred to in this paper as the "new disinfectants." The other two were a sodium hypochlorite compound and an organic acid containing a wetting agent. From 80 to 98 cans were treated with each product. Bacterial counts before and after treatment indicated very effective reduction of bacteria but no significant difference between the compounds used. The percentage reduction in counts ranged above 99.8 per cent. The number of bacteria after treatment were quite satisfactory with some advantage shown for the quaternary ammonium compounds.

Another test of significance to dairy plants was made by A. J. Krog, Health Officer of Plainfield, New Jersey, who used one of the new disinfectants as the sterilizing rinse on milk processing equipment. Swab tests made at eighteen different points before and after treatment showed reductions in bacterial counts of from 60 to 98 per cent. Tests for concentration of active material showed no loss of strength at the end of the five minute treatment.

Experimental work on Roccal and other non-chlorine germicides was reported by J. M. Frayer of Vermont Agricultural Experiment Station in Bulletin 511. He presented data to show the effect of the non-chlorine disinfectants on some of the common organisms used in test work. Concentrations at 200 ppm. of Roccal showed complete kills with *A aerogenes* in 1 minute, with *E Coli* in 3 minutes and with the spore former *B Subtilis* in 3 minutes. He concluded that Roccal is a highly effective germicide which is quick acting in high dilutions such as recommended on dairy equipment.

The use of these quaternary ammonium compounds has grown rapidly during the war when large quantities were furnished for general sanitation in army camps. The most extensive use in the dairy industry is probably for farm dairy sanitation in connection with the milking utensils and milk house equipment. The use of these products in dairy plants is definitely under way, however, and more can be expected as information on the effectiveness of these products is developed.

## NEW JERSEY CONTROL BOARD

The State Milk Control Board announced here recently the reappointment of Col. Arthur F. Foran, Flemington, as state director of milk control for a term of five years.

The members of the board are J. M. Nevius, Somerville, farmer member and regular chairman: Mrs. Mary Prall Logue, Bridgeton, consumer member, and John C. Borden, Burlington, dealer member.

# Army Technologists

### Quartermaster Corps Trains Scientists for Food and Research Work—Course to Extend for Three Years

Graduate food technologists, technically qualified to do food and container research and development work, will enter various fields of the food industry, upon completion of the three year scientific training program, being sponsored by The Quartermaster General, U. S. Army, at the University of Chicago, Iowa State College, and Northwestern University.

Colonel Charles S. Lawrence, Commanding Officer, Quartermaster Food and Container Institute, Chicago, which collaborated widely with the food indutry in the development of all food requirements for the Armed Forces, is responsible for integrating the graduate work of the students at the universities with the Army's program of research and study.

### Known as Chicago Plan

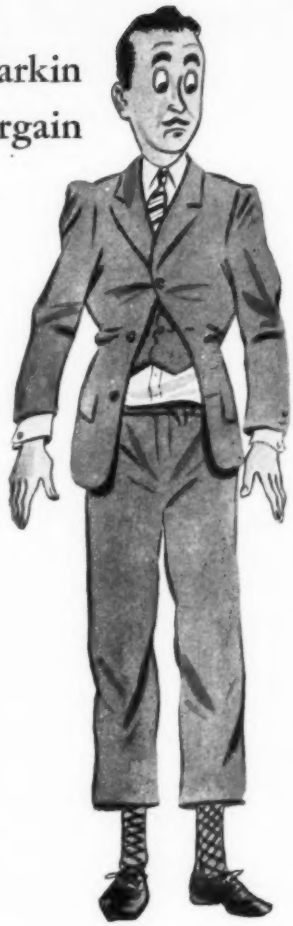
The program, which is known as the Chicago Plan, will be three years in duration. It is the Army's plan to assist in the education of a group of scientists who will be available to industry upon completion of the course so the problems of food and packaging research of the armed forces can be more closely identified with industry. It will combine graduate study at one of the three universities with actual laboratory work at the Institute on special projects, assigned in connection with food and container research.

The majority of the men, who were selected jointly by the staffs of the Institute and the universities, are returned veterans of World War II. Only six have not had previous military experience. They have been commissioned as reserve officers in the Quartermaster Corps and have been called to active duty and will receive the full pay and allowances of their respective ranks while on active duty. In addition, all tuition, equipment and laboratry fees will be paid by the War Department. Upon completion of this training period of approximately three years, they will revert to civilian status and can be called to active duty only for a national emergency.

## OPEN KANSAS CHEESE PLANT

Alma, Kans.—The Alma Cheese Co. factory, the third to be built and operated in this area by Roland Ek of Dwight, opened for business recently. Costing around $40,000 the new unit offers local dairymen a fine outlet for their milk.

Henry Larkin got a bargain



**WISE DAIRYMEN FIND**

# it doesn't pay to buy "bargains" in Vitamin D Concentrate either

**BUYING VITEX* VITAMIN D CONCENTRATE, DAIRYMEN GET QUALITY AND SERVICE THAT ASSURE SUBSTANTIAL EXTRA PROFITS.**

When you buy Vitex "Natural" Vitamin D Concentrate, you get the best product of its kind—backed by the company with the best record for helping dairymen build quick, steadily increasing Vitamin D Milk volume, and substantial year-after-year extra income. It costs more to manufacture and market a top-quality product and back it with real sales support. But Vitex "Natural" delivers extra profits that far, far out-weigh the initial investment. Here's why—

**FIRST, VITEX "NATURAL" IS THE ORIGINAL QUALITY PRODUCT**

Today, more than ever, you need top-quality Vitamin D, to hold and build profitable Vitamin D volume in the face of increasing consumer prices. Vitex "*Natural*" is the original Vitamin D Concentrate for milk fortification—the only concentrate now available from time-tested, *professionally-preferred* marine sources. Produces the only kind of Vitamin D Milk proved by actual scientific test to help sound teeth *stay* sound. A *cream-type* carrier—packed in hermetically sealed, sterilized cans, specifically designed for safe, easy addition to milk. Vitex "*Natural*" provides *guaranteed* amounts of Vitamin D, plus the Vitamin A which occurs naturally in marine source concentrates.

**SECOND, VITEX OFFERS EXPERIENCED SALES SUPPORT.**

Vitex field representatives are experienced dairymen who have proved their ability to build premium milk volume for every type of dairy and milk market. *These Vitex experts held 86 meetings with routemen during the first six months of this year,* first and vital step toward building profitable premium milk volume.

**THIRD, VITEX SALES PLANS REALLY CLICK.**

Vitex sales plans are not just vague suggestions or cute tricks. Vitex sales plans are practical plans with a single purpose—to sell more premium milk. Nothing is left to chance—everything is provided to do a complete sales job.

**AND HERE'S PROOF THAT VITEX ASSURES SUBSTANTIAL EXTRA PROFITS**

Here are the *facts-in-figures* . . . the average Vitex licensee is making $730 or more extra income per route, per year—*a tidy profit picture for any dairy, large or small,* and the figure is still going up.

Write Vitex Laboratories *today* for full information on how to enjoy extra profits with Vitex "Natural" Vitamin D.

VITEX offers real sales support

**VITEX**

*Trademark Reg. U.S. Pat. Off.

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**LABORATORIES · 212 FIRST STREET, HARRISON, N. J.**

# Vapour-Pressure Thermal System*

## Modern Automatic Control Instruments Successfully Applied to High Temperature—Short Time Equipment for Milk Pasteurization

By L. S. Yoxall, (Foxboro-Yoxall Std.) Society of Instrument Technology

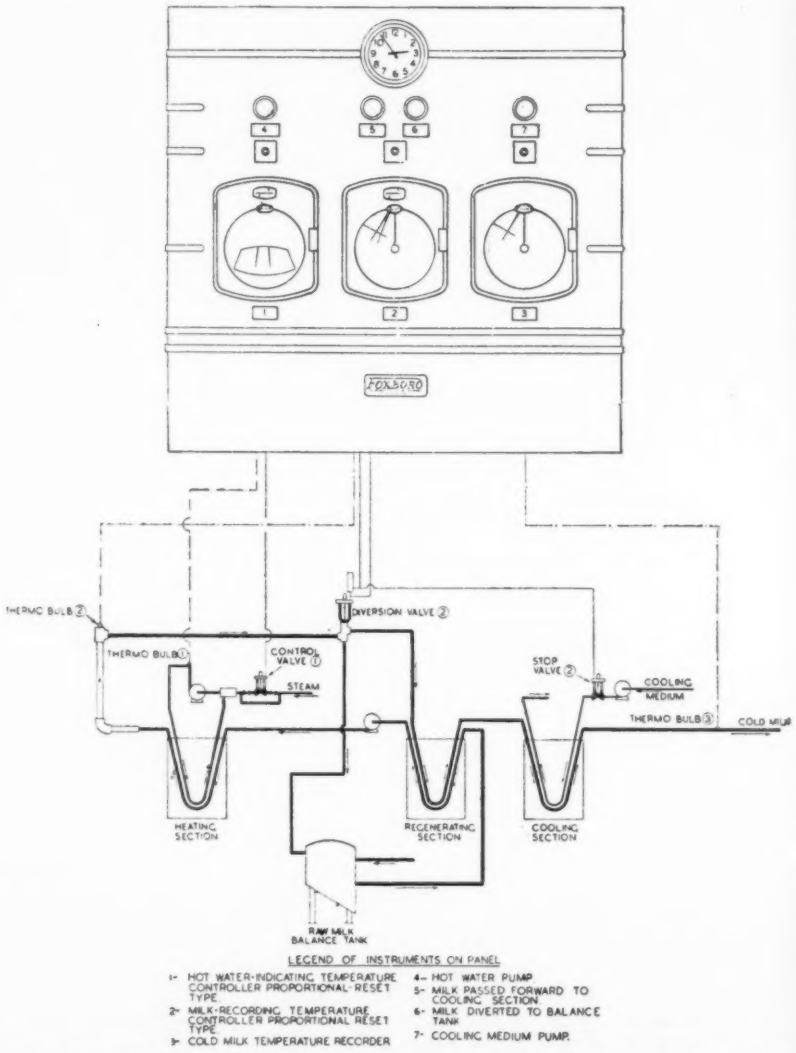
THE DEVELOPMENT of the High-Temperature and Short-Time method of milk pasteurization has brought into the dairy industry similar problems and control reactions to those which accompanied developments in the chemical industry generally, and particularly that section involved in distillation. The trend in industry today to speed-up processing by increasing velocities and reducing capacities is a natural and logical means of attaining higher efficiencies, but, if satisfactory results are to be obtained, then it necessarily involves a different method of approach to that used in connection with older plants operating with lower velocities and higher capacities.

Capacity is, therefore, one of the dominating factors in automatic control, but needs qualification because some capacities have the effect of smoothing out surges or fluctuations in a process, and hence are termed "favourable" capacities, whereas others have the effect of accentuating surges or fluctuations and are termed "unfavourable" capacities. Pasteurizing plants operating with lower temperatures and longer times, such as the 30-minute holding plant, involve capacities which are largely favourable, but the High-Temperature and Short-Time pasteurizing plants involve capacities which are predominantly unfavourable. It follows, therefore, that whereas the automatic control of low temperature and long time methods of pasteurization can be successfully approached according to the principles applying to batch type plants, the High-Temperature and Short-Time methods of pasteurization must be approached according to the principles applying to continuous type plants.

### Eliminate Controllable Variables

It is fundamental in the control of continuous type plants that variables which are controllable must, as far as possible, be eliminated at their source. It is primarily for this reason that in the control of H.T.S.T. pasteurizers the temperature of the circulating water is controlled unto itself by regulating steam to the heater. This prevents variations in the pressure of the steam supply and fluctuations in the rate of the water circulation from influencing the temperature of the hot milk. In order to take account of the overall changes in load, a second, or master, controller is installed, measuring the temperature of the milk after the holder and resetting the control point of the circulating water temperature controller. The major function of this master controller is to compensate for variations in the rate of feed of raw milk and its temperature at the outlet of the regenerative section.

Figure 1 shows this method of control as applied and practised on modern H.T.S.T. machines. Obviously, there are slight differences according to the particular design and make of pasteurizer, but all controllers used on H.T.S.T.




TYPICAL INSTRUMENT SCHEMATIC FOR H.T.S.T. MILK-PASTEURISING MACHINE

FIG. 1

*This article is reprinted from the May, 1946, issue of our esteemed contemporary, **Dairy Industries**, England, and to that publication the **Review** gives full credit and thanks.

says EDWARD C. BARTHELMES, Route Salesman, Sterling Milk, Inc., Erie, Pennsylvania.

# KRIM-KO is the 2-to-1 favorite hereabouts

"KRIM-KO sure makes my selling job easier," Mr. Barthelmes continues.

"I've been on the beat for Sterling Milk for five years, and right from the beginning KRIM-KO Chocolate gave me the inside track in getting new business and holding my old friends firmly in line."

Yes, KRIM-KO . . . the nation's 2-to-1 favorite by actual taste-tests . . . is a real sales booster. Write today for further details.

**KRIM-KO CO.**
**4830 S. Christiana Ave. • Chicago 32, Ill.**

**KRIM-KO** CHOCOLATE DAIRY DRINK

plants should embody the following features:

(1) The Hot Water Temperature Controller measuring the temperature of the circulating water and controlling its temperature by regulating the steam supply to the heater. This instrument should preferably include manual adjustment for the maximum water temperature so as to eliminate the possibility of overheating the milk.

(2) The Hot Milk Temperature Controller measuring and recording the temperature of the pasteurized milk at the outlet of the holder, controlling automatically the temperature of the milk by resetting the control point of the hot water temperature controller.

(3) Mechanism to divert back to the raw milk balance tank all milk which is not pasteurized at the pre-set temperature by operating a milk diversion valve or similar device. Further, when the temperatures measured at the outlet of the holder rises to the correct pasteurization temperature, it should automatically return the milk diversion valve to the normal running position and feed the milk through to the regenerative and cooling sections.

The foregoing outlines some of the more important factors involved in the control of a H.T.S.T. pasteurizing plant and gives in broad outline the way in which the problem must be approached from the practical point of view. For automatic control to be successful it is obvious that

(1) The measurement of the temperature must be faster than the most rapid deviation from control point which can occur under any conditions of operation, and

(1) Any adjustment of the heat input made by the controller to correct for any tendency of the hot milk temperature to deviate from control point must be made at a rate at which the plant can absorb it—no faster and no slower, because it is a continuous process with little capacity and the heat input must, at all times, balance the demand.

### Temperature Deviation

In order to see whether, with present equipment, the fundamental considerations given above can be satisfied, it is first necessary to establish the maximum rate of temperature deviation from control point. I believe it will be agreed that the maximum rate of temperature deviation likely to occur on a H.T.S.T. pasteurizer would result from a failure of the circulating water pump which would, in turn, stop the flow of water and, hence rapidly reduce the rate of heat transfer. The writer was fortunate in being given permission to take tests on a H.T.S.T. pasteurizer in actual operation and the result of this test is shown in Figure 2, Curve A. Curve B in this same figure shows the rate of deviation resulting from a failure of the steam supply to the heater and, as would be expected, this is appreciably slower than that resulting from a pump failure. Whilst it is appreciated that the actual maximum rate of temperature deviation will vary with different designs and makes of H.T.S.T. machines, it will be seen that the fastest rate on the plant tested is of the order of 10 seconds for the first 1 deg. F. deviation, and it is probable that other designs and makes will not deviate radically from this figure unless it is in the direction of taking a longer time to deviate.

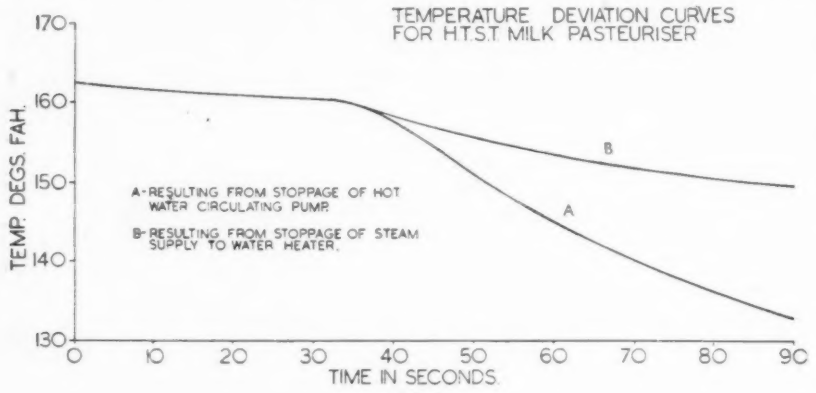


FIG. 2.

Having established the maximum rate at which temperature can deviate from control point, then the next step is to establish the rate of response of the measuring systems which might be used on these machines. The writer has always favoured and recommended the use of the vapour-pressure thermal system for this application, but considerable publicity has been given recently to the use of the thermo-electric method of temperature measurement, and this method has been represented as being materially faster than any of the thermo-expansion types. Tests have, therefore, been taken with a view to establishing the relative merits of the thermo-electric and thermo-expansion systems. In these tests the following elements were used:

### Thermocouple Construction

(*a*) A thermocouple constructed from 36 B.S.W.G. Iron and Manganin Wire. This thermocouple was used bare and operated in conjunction with an Electronic Recorder with circular type chart having a time period of 60 seconds. This type of thermocouple is, of course, completely impractical for any industrial application, but was used in order to obtain a comparison with more practical elements.

(*b*) A thermocouple constructed from No. 20 B and S Gauge Iron and Constanton Wire made reasonably practical by fitting into a stainless steel sheath measuring approximately 3/16" o.d. and with wall thickness of 9/1000th's inch. In order to obtain the maximum possible response with this type of thermocouple, the end of the sheath was welded over with the thermocouple junction just proud of the end surface. This thermocouple was used in conjunction with the Electronic Recorder referred to above.

(*c*) A vapour pressure element was constructed from 9/32" o.d. 26 B.S.W.G. Monel Metal and fitted with 6 feet of

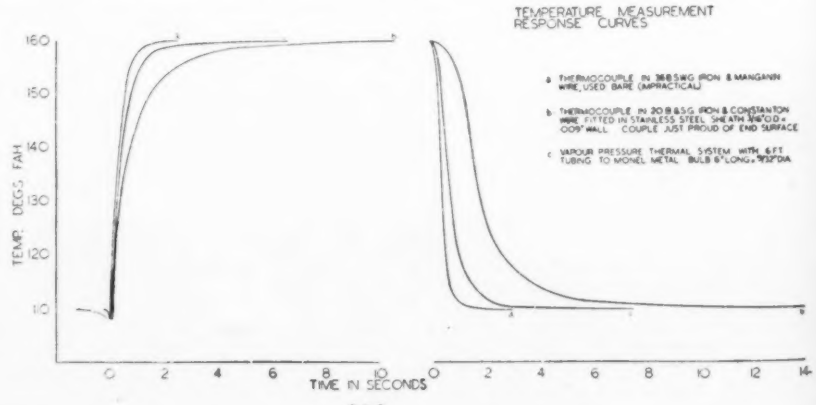


FIG. 3.

# November Deliveries
## Now Being Scheduled for
## SHARPLES
## *"Presur-Seald"*
## Cream Separators and Milk Clarifiers

These modern machines are now being produced in considerable quantity. Early orders have, for the most part, been filled . . . and the machines are now in service . . . establishing an excellent performance record.

The present indications are that when this announcement reaches you there will still be time for you to obtain shipments in November, 1946. On a Presur-Seald Separator, the capacities are 4,000, 8,000 and 12,000 pounds of milk per hour . . . on the Milk Clarifier, the capacities are 6,000, 12 000 and 22,000 pounds of milk per hour.

Remember these are the separators and clarifiers which the industry helped design . . . nothing but stainless steel is in contact with the product . . . nickel alloy frame, cover and motor housing . . . *completely rust and corrosion resistant.*

Have you received your copy of the new Sharples Bulletin?

**The Separators and Clarifiers of Tomorrow are Being Built by Sharples Today!**

*Dairy Equipment Division*

**THE SHARPLES CORPORATION**

*Centrifugal and Process Engineers*

NEW YORK 17, N. Y. 501 Fifth Avenue
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SAN FRANCISCO 5, CALIF. 686 Howard Street
CLEVELAND 15, OHIO 453 Hippodrome Annex Bldg.

EXECUTIVE OFFICES AND FACTORY, 2300 WESTMORELAND STREET, PHILADELPHIA 40, PENNA.

capillary tubing to a helical pressure element of standard construction.

Comparative tests were made in a standard type of circulated calibration bath containing water, one bath being held at 110 deg. F. and a second bath held at 160 deg. R. The elements were changed from one bath to the other and were held in each bath until equilibrium was attained.

**Making the Tests**

The author was anxious to establish whether there was any measurable delay between the time the element was inserted in the bath and the time when it commenced to respond. To prove this point an additional recording pen actuated by a solenoid was fitted to each of the recording instruments. An electrode was then fitted to each of the temperature elements, being insulated from them, and keeping them a sufficient distance away so that they did not influence the response. The electrical connections were such that the circuit was completed when the temperature element and electrode were short-circuited by the water in the test bath. In this connection it is worthwhile noting that the circular chart making one rotation in 60 seconds gave approximately 1/16th linear travel at the point where the pen recorded, for a time period of ⅛th second. Even with this sensitivity it was not possible to detect any lag between the insertion of the bulb into the bath and its initial movement.

In making these tests it was considered that thermocouple (*b*) and the vapour-pressure element (*c*) represented the lightest construction which would be satisfactory from the practical point of view. These are, therefore, comparable in their respective types, whilst thermocouple (*a*) was included purely for comparison purposes and does not, in any way, represent a practical element.

The curves in Figure 3 show the results of these tests. The fall in temperature preceding the rise from 110 deg. F. to 160 deg. F. is due to the cooling effect of the air when transferring the elements from one bath to the other. A similar effect can be seen in the curves for the drop in temperature from 160 deg. F. to 110 deg. F., though it is not so pronounced. It will be noted that the vapour-tension element (*c*) is faster in response than thermo-couple (*b*) but, as would be expected, it is not quite so fast as thermocouple (*a*). These results substantiate the view that the author has always held, that the vapour-pressure system can be constructed so as to be just as fast in response, if not faster, than a thermocouple, provided there are no application limitations. This is due to the fact that one of the primary factors influencing the speed of response is the surface to mass ratio. It is clearly the best choice for the milk pasteurizer application and, of course, it also has the advantage of simplicity, whereas the thermo-electric method would introduce a more complicated measuring system which would inevitably need more frequent and more highly skilled maintenance.

From Figures 2 and 3 it will be clear that, due to the high rate of response of the vapour-pressure thermal system, it will follow any temperature deviation which can occur on a H.T.S.T. plant. Since, with the vapour-pressure thermal system an accurate measurement of the temperature is assured then, provided that the control system employed operates, and is installed, in such a manner as to take account of load changes, then true and correct temperature control must result. As is well known, proportional controllers will not operate under conditions of changing load without temperature deviation from control point, so that to ensure the best possible results both the water temperature controller and the master milk temperature controller should incorporate proportional action with reset.

In Figure 4 I have reproduced a typical chart record showing the accuracy of control obtained with equipment as described earlier, except that the vapour-pressure measuring system used was not quite so fast in response as the curve shown in Figure 3. The faster thermal system referred to in this paper should tend to show improved results, although the writer does not anticipate that there would be any radical improvement because the thermal system used was already many times faster than the maximum rate at which the milk temperature can deviate even under exceptional conditions.

**Response of Diverting Mechanism**

Another matter of considerable importance in milk pasteurization is the response of the diverting mechanism. The writer has always advocated and used the pneumatic method of operation because of its flexibility. The pneumatic method lends itself to designs which will give a very fast action on diverting, coupled with a relatively slow return to normal running. The slow return is an additional safeguard against passing forward any milk which is incorrectly pasteurized. With the penumatic mechanism used by the writer, the lag between the temperature falling to the point of diversion and a complete change-over of the milk stream to diversion is less than 1/10th of a second.

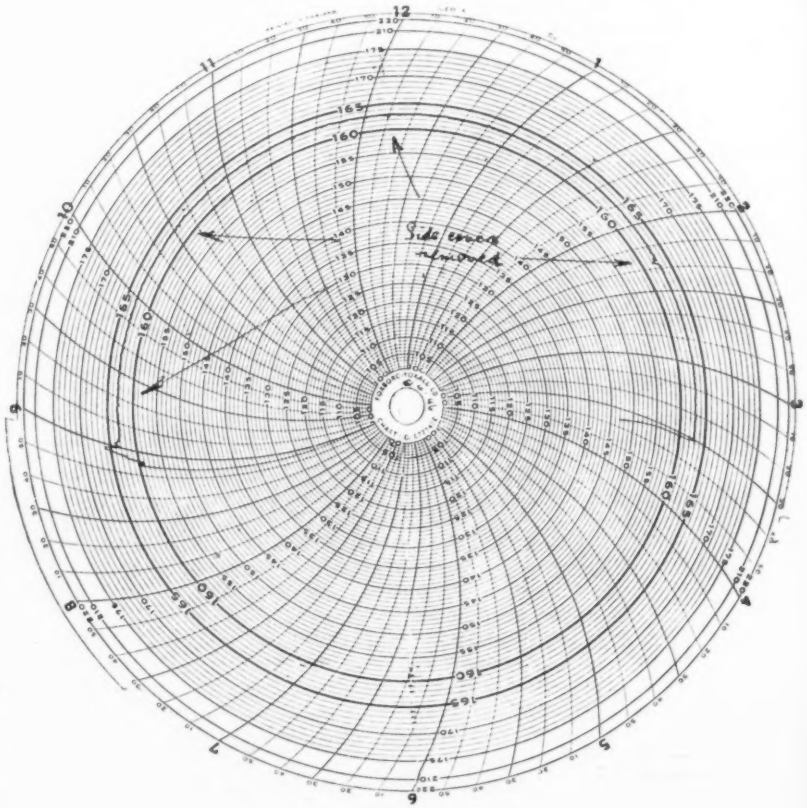


FIG. 4.

ADEPT LABORATORIES, INC.

*Announces*

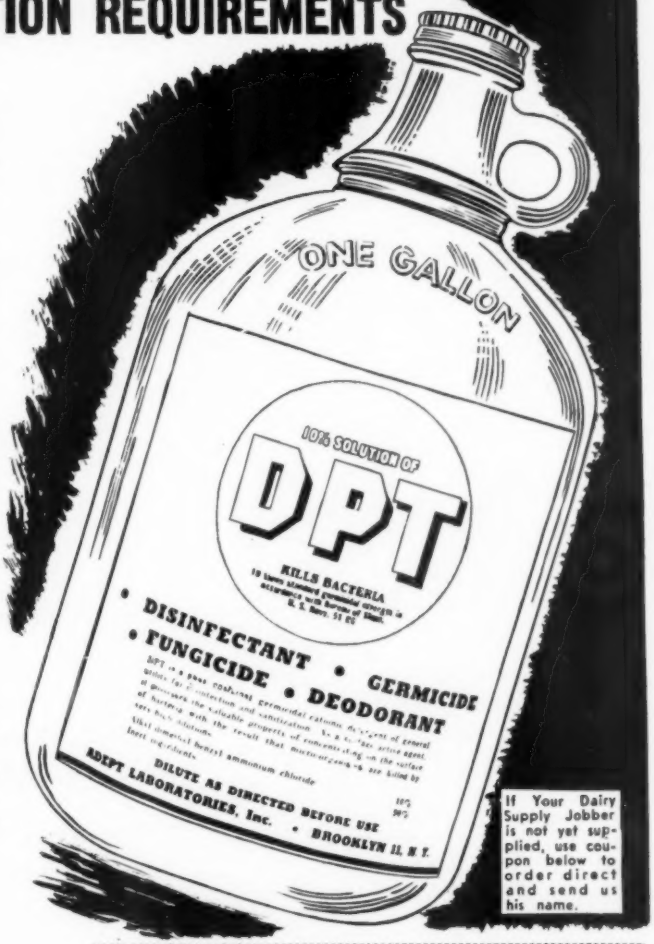
# A NEW POTENT GERMICIDE

## FOR ALL DAIRY SANITIZATION REQUIREMENTS

Bacteria is a quick, ever-present threat to product quality in all dairy plants. Highly effective in combating this danger is DPT, the new concentrated, fast-acting, powerful bactericide. Its almost instantaneous killing action restricts bacteria growth by sanitizing all surfaces and equipment which contact milk or cream. In recommended dilutions, DPT is odorless, tasteless, colorless, non-toxic, non-corrosive, non-irritating to personnel and extremely economical. One gallon makes up to 640 gallons of effective germ-killing solution.

Use one gallon of DPT as a sample at our risk. If not completely satisfied, your money will be refunded in full. *Descriptive literature available on request.*

*Keeps Bacteria Count Low!*




If Your Dairy Supply Jobber is not yet supplied, use coupon below to order direct and send us his name.

| ONE GALLON BOTTLE | 1 DOZ. GALLONS |
|---|---|
| **$4.50** | **$50.00** |

**ADEPT LABORATORIES, INC.**
*INDUSTRIAL DIVISION*
211 N. 8th Street Brooklyn 11, N. Y.

ADEPT LABORATORIES, INC.
*Industrial Division*
211 N. 8th Street
Brooklyn 11, N. Y.

Enter our order and ship_____ Gals. of DPT at $_____. After using 1 Gal., if not satisfied, we may return it for full refund.

☐ Payment enclosed. ☐ Send invoice.

Company_____

Name_____ Title_____

City_____ Zone_____ State_____

Jobber_____

When, on a H.T.S.T. plant, milk is being diverted back to the raw milk balance tank, there is always a risk of excessive cooling, or even the possibility of freezing the milk in the cooling section, and for this reason it is now fairly common practice to fit an automatic stop valve in the brine circulating line which is operated off the same air-pilot mechanism as is used to actuate the diversion valve. Such an arrangement is shown in the line diagram in Figure 1. This protection is, of course, only required on those plants where milk remains in the cooling section when diversion occurs.

The cooling section represents a further application where automatic control may be used to advantage. Some 12 to 18 months ago a trial installation was made on a milk cooler of the direct milk to refrigerant heat exchange type with a proportional-reset pressure controller installed to maintain a constant pressure of ammonia in the reduced pressure section. This arrangement gave very excellent results, but it should be borne in mind that when used on plants where milk remains in the cooling section during diversion, that protective equipment as referred to above would, no doubt, be desirable.

### Centralized Control Operations

To achieve accurate measurement and control at all the critical points of a H.T.S.T. pasteurizing plant is one important step forward. The next step is to bring all these important measurement and control operations to one central point where the operator can exercise exact, simultaneous and overall supervision of the entire plant. Typical of such centralized control installations is the panel shown in the line diagram, Figure 1. With these modern installations the automatic control of temperature is 100 per cent complete because it is carried out without the use of open by-passes, etc.; in fact, such methods are to be deprecated. It will also be noted that the starting and stopping of pumps is carried out remotely by push buttons located on the panel and that warning lights are provided as proof of their functioning.

This paper would not be complete without some reference to the purely practical aspect of instrumentation in a dairy. For instance, much progress has been made during the past few years in the mechanical efficiency of control instrument construction. Components which hitherto have been fitted externally to the main instrument case are now being incorporated inside, which, apart from giving a cleaner and neater appearance, has the advantage in the dairy of giving greater protection against the moist atmosphere and the effect of water splashings during "hosing down". Methods have also been devised to increase the mechanical strength of the capillary tube protection used in thermal systems with the result that today breakages are very much less frequent and may, in the near future, be almost entirely eliminated.

The progress made in controlled valves, both with regard to characteristics and mechanical construction, have been almost revolutionary. As a result of the most careful selection of the stainless steels used in their construction, replacement and maintenance has been reduced to an absolute minimum.

If, in these notes, I have been able to show that modern automatic control instruments have the necessary speed of response in measurement, the type of control system necessary to avoid deviations from control point with changes in load, are able to operate diverting mechanism without undue lag, have that rugged construction making them capable of withstanding the difficult conditions existing in the dairy, and, above all, that back of all this there is the knowledge to successfully apply the equipment which is available, then it will have well served its purpose.

In conclusion, the author would like to express his appreciation of the facilities extended to him for practical tests, by Mr. A. W. Reid and Mr. F. Gilbey, of the Royal Arsenal Cooperative Society, Mitcham. He also thanks those persons on the Engineering Staff of the Company for their assistance in the experimental work and particulary Mr. H. T. Disher for his help in assimilating the data obtained.

## TOLEDO OPERATOR DIES

Edgar M. Jamison, founder and former head of the Jamison Dairy Co., Toledo, Ohio, died in his home, after an illness of three years. He was 49.

A Toledo dairyman most of his life, Mr. Jamison spent 18 years with the Ohio Clover Leaf Dairy. In 1935 he resigned from the management of the Ohio Clover Leaf and with his father the late E. L. Jamison founded the Jamison Dairy, Inc. In 1943 because of illness, he sold his business to Babcock Dairy Co.

Mr. Jamison was born in Toledo and was a member of Collingwood Presbyterian Church. He served overseas in World War I and was a member of Vernon McCune Post, American Legion. Surviving are his wife and son Edgar, Jr.

## MINNESOTA PLANT BURNS

Winthrop, Minn.—The R & W Produce building, operated by R. C. Walz and his son Marcus, was severely damaged by fire recently. The business, however, is being continued as in the past.

## C-P OFFICIAL DIES

### R. F. Davis Served Creamery Package Manufacturing Co. for 53 Years

Raphael F. Davis, secretary and a director of The Creamery Package Manufacturing Company, Chicago, with which firm he had been associated for 53 years, died suddenly Sunday, July

R. F. Davis

28, in his home at 809 S. Green Bay Road, Highland Park, Ill. His death was caused by thrombosis.

Mr. Davis was born near Springdale, Iowa, on February 24, 1870. Following his early education in Iowa, he moved to Kansas City, Mo., and in 1893 started work in the Kansas City branch of Creamery Package where he later became manager.

The company brought him to its general offices in Chicago in 1914 and four years later he was made assistant secretary. In 1927 he became secretary, and was elected a director in 1939.

Survivors are his widow, Bessie Mills; a son, Lawrence M. of Chester, Pa., and three grandchildren.

## UNION ELECTION AT BORDENS

Buffalo, N. Y.—The International Association of Machinists (unaffiliated) was designated recently as the collective bargaining agent for 113 eligible employes at the Bainbridge plant of the Casein Co. of America, division of the Borden Co.

## MICHIGAN DAIRYMAN PASSES

Kalamazoo, Mich.—John Van Dyken, Sr., former proprietor of the Van Dyken Dairy died here recently. Mr. Van Dyken is survived by his wife, three sons and one daughter.

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# Control of H.T.-S.T. Pasteurization

## Sensitivity and Response in Temperature Measurement in Plants Employing the High Temperature-Short Time Process in England

**★★ The *Review* is pleased to present herewith the full text of a paper entitled "The Problem of Control" by J. E. Caffyn, B.Sc., A. Inst. P., of the National Institute for Research in Dairying, University of Reading, England, that was read at a joint meeting of the Society of Dairy Technology and the Society of Instrument Technology held in London May 15.**

**This paper was originally printed in the May issue of *Dairy Industries* published in England, and to this worthy contemporary the *Review* is indebted and thankful for reprinting this highly interesting contribution to the dairy industry.**

IN DISCUSSING pasteurizing control it is necessary to distinguish between the two types of plant as the control problem of the Holder process is relatively simple compared with that of H.T.-S.T. process. It is the latter that will be dealt with here.

There are two aspects of pasteurizing control. The first is the control of temperature and the second the control of holding time.

The temperature control system of the H.T.-S.T. pasteurizer must be sensitive, rapid in response, and stable in the sense that temperature fluctuations of increasing amplitude do not occur. These requirements are to a degree incompatible. This is readily seen in a purely qualitative way from the following case.

Consider a system whose temperature is to be controlled. The system has associated with it a time-lag. If the temperature departs from the controlled valve, the controlled operates to bring the temperature back, but it does not cut out when the controlled temperature has been reached owing to the time-lag, and thus the temperature overshoots. Now the faster it returns to the controlled valve, the greater the overshoot and vice versa. It is of course the aim of instrument designers to devise systems which will be rapid in response and achieve control. Although much improvement has been obtained, it is still not possible to eliminate entirely all temperature fluctuations in a controlled temperature system.

The H.T.-S.T. control system is complex, but we can distinguish two types of temperature fluctuations, those arising from external causes, and those resulting from the controlling system in restoring the pasteurizing temperature, e.g. in the illustration given earlier the overshoot is of the latter type. The object of temperature control must be to ensure that the temperature fluctuations about the controlled temperature are such that the instantaneous temperature of the milk is not lower than 162 deg. F.

The major factors affecting the milk temperature are:

(*a*) Milk flow rate,

(*b*) Raw milk temperature,

(*c*) External conditions and temperature,

(*d*) Rate of heat transfer to the milk.

The problem of variable flow rate has been dealt with in three ways. Firstly, constant speed motors have been used to drive the milk pumps. Secondly, flow control valves have been inserted in the raw milk line. These valves are designed to give a constant rate of flow in spite of variable driving pressure. Thirdly, with gravity feed, the milk is maintained at a constant head, thus ensuring a constant flow rate provided the mean temperature does not vary. Variable temperatures influences the rate of flow indirectly by its effect on the viscosity, but this is only of importance under conditions of laminar flow. The constant head can, of course, only be maintained if there is an adequate milk supply to the constant head tank.

Relatively large fluctuations in the raw milk temperature are reduced considerably in passing through the regenerative section. Colder milk increases the amount of heat transferred in this section and thus serves to smooth out initially large temperature differences. Consequently no close control of the raw milk temperature is necessary, though some attempt has been made to achieve a measure of control.

The temperature of a dairy changes considerably and hence the heat losses will vary. If, in addition, the plant is subjected to draughts, this variation will be increased. These heat losses cause effective variations in demand and have to be met by an increased heat supply from the hot water, though practically their immediate effect is a temperature fluctuation.

The rate of heat transfer is the major factor in maintaining the milk at the pasteurizing temperature, but it is subject to variations, of which the principal causes are changes in the temperature differential, i.e. changes in the hot water temperature and changes in the hot water flow rate. The latter is dependent on the pump, but there have not been any additional attempts to control this rate other than by using constant speed pumps. The hot water temperature is of course maintained by a controller and the stability of the hot water system is therefore of great importance.

### Hot Water System

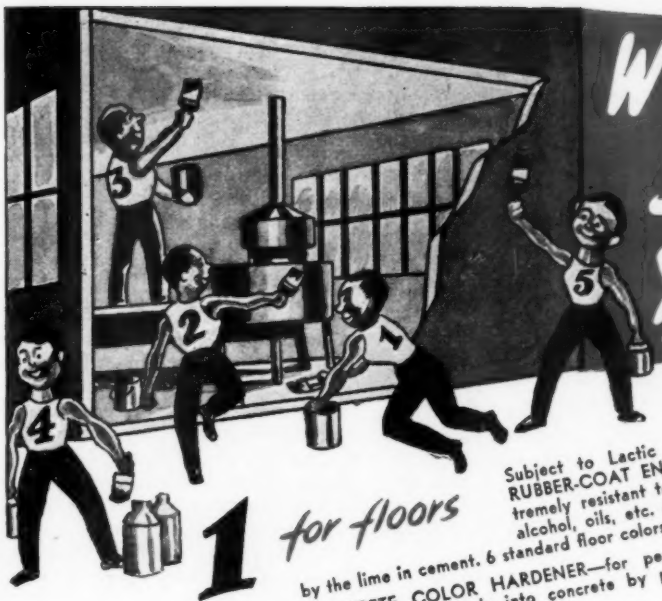
In most pasteurizers proportional controllers are used and it is possible with this type of controller to choose a throttling range and hot water capacity, so that with the lags present stability can be achieved, but this does not eliminate entirely temperature fluctuations.

Increased demand will cause a shift in the control temperature, and to eliminate this effect proportional-reset-controllers have been used. To ensure stability with this type of controller it is necessary to reduce the sensitivity of the instrument, i.e. offset has been eliminated at the expense of slower response.

Additional cause of water temperature fluctuation are steam pressure and steam dryness. The former can be stabilized by a reducing valve, but the latter is difficult to control.

Any temperature fluctuations in the milk will call forth a response from the control system which may itself produce additional temperature fluctuations in the milk.

Apart from the types of instrument which can be used for temperature control, there are two distinct methods of control. Firstly, those systems which rely entirely on maintaining the hot water temperature; this is a semi-automatic control because major changes of demand require manual resetting of the control instruments. Secondly, those systems which have temperature sensitive elements in both the hot water and hot milk, each operating the steam valve heating the hot water system. This method is fully automatic and is a type of feed back which has considerable ad-



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vantages in respect of stability and effective control.

With perfect control it must be realized that the constant temperature obtained is that in the immediate vicinity of the measuring instruments. This does not preclude, therefore, the possibility of milk at a different temperature passing the temperature sensitive element. The governing factor is the condition of flow in that section of the pasteurizer where the sensitive element is placed. If the flow is fully turbulent, then the temperature is essentially the same across the greater part of the section, but a temperature gradient may be present at the extreme edge. This will depend upon the external conditions at that section. The temperature gradients have been minimized in a recent design of holder by giving it an air insulation. Whether this is preferable to a thermostated holder must be decided by experiment. In addition, there is always the problem of where to place the sensitive element. If it is placed at the inlet to the holder, then there may be a temperature drop along its length. If placed at the outlet, eddies of insufficiently heated milk may enter the holder, and as a result of turbulent mixing, may not be detected at the outlet. Legal requirements and bacteriological considerations demand that no milk falls below 162° F., therefore the control temperature must exceed 162° F., thus giving a safety margin to cover these contingencies.

### Flow Diversion Valve

The flow diversion valve is the final safeguard of the system, as it diverts under-heated milk back to the raw milk tank. There are, however, one or two considerations in connection with its operation that are worthy of further examination. The sensitive element has a lag associated with it, which is different with different types of element and with different types of flow, but we may associate with the sensitive element, the controller, and the flow diversion valve an overall lag. The positioning of the sensitive element of the flow diversion valve must be discussed in relation to this overall lag. If it is placed at the inlet to the holder, the overall lag must be less than the time taken for the fastest particle of milk to pass through the holder to the flow diversion valve, otherwise under-heated milk will pass the valve before it cuts in.

But now consider the operating conditions as the milk reaches again the pasteurizing temperature. The flow diversion valve will go out of operation before the fastest particle of milk has got to it, i.e., there will still be underheated milk in the holder.

The obvious solution to this problem is to make the valve's overall lag equal to the time taken for the milk to pass from the temperature sensitive element to it. This is, however, not possible, as the time taken for milk to pass the sensitive element to the valve cannot be represented by a single time, but is better represented by a distribution of times. A flow diversion valve is required, therefore, which has two lags, one when coming into operation, and one when going out of operation. The first must be less than the time required for the fastest particle to traverse the holder and the second greater than the time required by the slowest particle to traverse the same distance.

Such a system with this property could be devised using the magnetic hysteresis curve of iron, but the difficulty has been overcome by a semi-automatic device which prevents the forward flow of milk for a certain number of seconds after the pasteurizing temperature has been regained.

### Overheating of Milk

The greater emphasis has rightly been placed on ensuring that the pasteurizing temperature has been maintained, but one must not overlook the fact that it is undesirable to overheat the milk. The milk flow in the pre-heating section is turbulent, nevertheless a laminar boundary layer exists in immediate contact with the metal walls, which are at the hot water temperature. Therefore the outer layer of milk is very nearly at pasteurizing temperature while in the heating section. To prevent this milk being subjected to a high temperature for excessive lengths of time, special design of the channel is necessary to promote mixing. How far each design is effective is a matter for experiment, but in general the more turbulent the flow the more effective the mixing.

Emphasis has been placed on the control of temperature, but it must not be overlooked that the control of holding time is equally important. Just as it is necessary to measure the temperature in the pasteurizer so the holding time must be measured. There are no sensitive methods available, but several experimental techniques have been used which are subject to relatively large errors.

One of the first methods was the injection of a dye solution at the inlet to the holder and recording the first trace to pass through the holder by sampling at the outlet. The accuracy of the method is determined by the rate of injection of dye, where in the flow stream the dye is injected, and the smallest concentration that is detectable.

This method has been modified in several ways. The dye has been replaced by salt solution, and to observe the first traces of salt solution a small conductivity cell is used. The limit of sensitivity is set by the smallest detectable concentration of salt.

A different type of modification, due to Dummett and Mongar, (1) is to use nickel chloride and to determine its presence at the outlet by estimation with dimethyl-glyoxime.

These methods enable the shortest holding time to be determined probably to an accuracy of about one second.

The holding time is affected by the flow rate, the degree of turbulence and the mean temperature. The relative importance of the factors is not known accurately, but gross control of holding time is achieved by the constant flow device. This does not entirely eliminate variations in flow rate. It is desirable, therefore, that the importance of changes in flow rate in relation to the holding time should be established.

The distribution of holding times can be compared to temperature fluctuation, and just as it is undesirable that they should be large, so it is undesirable that the distribution of holding times should be broad. Recently attempts have been made to shorten the distribution by special design of plate and holder, with remarkable success.

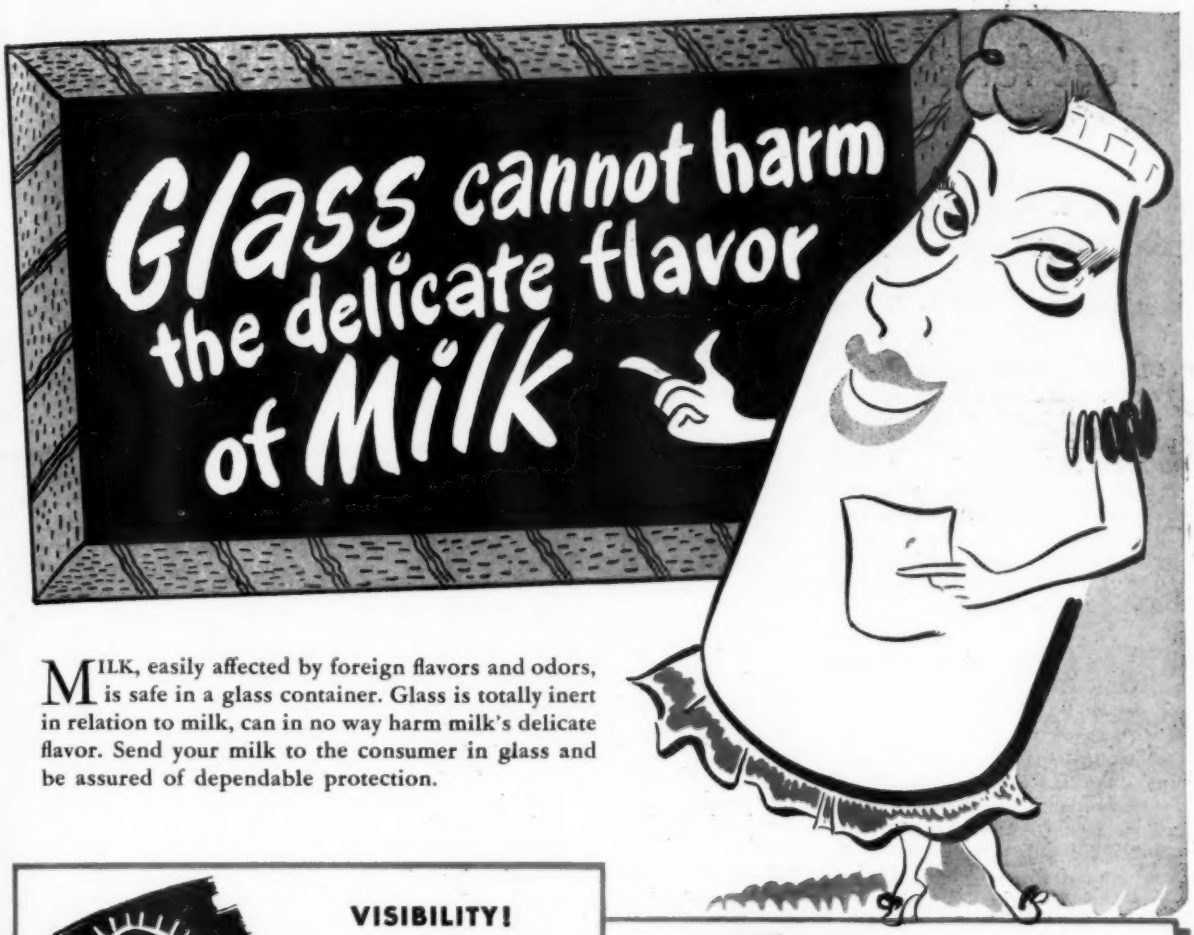
Some confusion may exist concerning holding time. The legal limit of 15 seconds is the shortest holding time, i.e., the time taken for the fastest particle to pass through the holder. The mean holding time is the average time for all particles to pass through the holder. The latter is governed by the distribution of holding times. If the distribution is broad then the mean holding time is appreciably greater than the shortest holding time. Thus, in fact, a broad distribution means that the bulk of the milk is heated at pasteurizing temperature for an unnecessarily long time.

It will be seen from what has been said that the control of holding time has not developed to the same extent as the control of temperature. No system operates continuously to control the holding time, and in this sense it is essentially different from the control of temperature.

In conclusion it should be realized that a discussion of control problems of H.T.-S.T. plants must be general in so far as the problem is viewed as a whole. No attempt has been made to consider in detail the difficulties encountered with a single type of plant, but rather to give fundamental principles which all new developments must satisfy.

### Reference

(1) Dummett, G. A., and Mongar, J. L., (1944), Dairy Industries, 9, 4, p. 264.

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# A Test for the Milk Plant As an Added Protection

## "Detection of Raw Milk Contamination in Homogenized Milk by Means of the Phosphatase Test and by Organolepstic Examination"

(By A. V. Moore and G. M. Trout)

DORNER AND WIDMER (1) showed that rancidity always developed in raw homogenized milk and in pasteurized homogenized milk to which raw milk had been added. They emphasized that homogenized milk must be a pasteurized product. These findings have been verified since by many workers. Practical experience has demonstrated that raw milk has no place in the homogenized milk field, or vice versa.

Since homogenized milk must be pasteuized, it has a public health significance. Some instances in commercial operation have demonstrated that if raw milk contamination of homogenized milk occurred, the rancid flavor developed would be so repulsive within 24 hours that people would not consume it. Thus, the taste of the milk would seem to be a good criterion by which contamination of homogenized milk with raw milk might be judged. On the other hand, public health control officials rely on the phosphatase test to determine if milk has been adequately pasteurized, and whether it has been contaminated with raw milk.

In view of these two means of detecting contamination of homogenized milk with raw milk, it seemed advisable to compare the effectiveness of the phosphatase test to the organoleptic test on milks in which there were various levels of raw milk contamination. To this end five trials were run. The data obtained on a representative trial are presented in tables 1, 2, and 3. The milk used was of high quality, pasteurized at 143 deg. F. for 30 minutes and homogenized at 2,500 pounds pressure, after which it was cooled and bottled. The milk contained approximately 3.9 per cent fat. The raw milk used for the contaminant was mixed milk of good quality. Tests weer made according to standard procedures. All organoleptic examinations were made without the identity of the samples being known to those examining the samples.

### *Effects of raw milk contamination of homogenized milk on the phosphatase test and on the development of rancidity*

The intensity of rancidity developed when homogenized milk was contaminated with raw milk depended upon the percentage of contamination (Table 1). Rancidity developed in homogenized milk when as little as 0.5 per cent of raw milk was added to the pasteurized product. after 7 days at 40 deg. F. Rancidity was not encountered in the contaminated homogenized milk when 0.05 or 0.1 per cent raw milk was added and the mixtures similarly stored. From the trend of the data obtained, it would seem that rancidity should eventually occur in milk to which 0.05 per cent or 0.1 per cent raw milk was added. It is unlikely, however, that homogenized milk intended for fluid consumption will be stored longer than 7 days even in the home. If rancidity, induced by raw milk contamination, is encountered in homogenized milk at 24 hours, the contamination must have exceeded 2 per cent. In three of the five trials, rancidity was noted questionably at 24 hours at the 2-per cent contamination level. On the other hand, rancidity was identified positively in only one of the five trials at the 4-per cent contamination level. Thus, it seems that 4 per cent or more raw milk contamination must be present before rancidity can be recognized in homogenized milk after 24 hours.

TABLE 1

The detection of various percentages of raw milk added to homogenized milk as determined by organoleptic examination.

NOT HOMOGENIZED

| Addition of raw milk (%) | Intensity of rancidity at 0 hrs. | 1 day | 2 days | 4 days | 7 days |
|---|---|---|---|---|---|
| 0.00 | — | — | — | — | — |
| 0.05 | — | — | — | — | — |
| 0.1 | — | — | — | — | — |
| 0.5 | — | — | — | — | — |
| 1.0 | — | — | — | — | — |
| 2.0 | — | — | — | — | — |
| 4.0 | — | — | — | — | — |
| 8.0 | — | — | — | — | ? |
| 10.0 | — | — | ? | ? | ? |

HOMOGENIZED

| Addition of raw milk (%) | Intensity of rancidity at 0 hrs. | 1 day | 2 days | 4 days | 7 days |
|---|---|---|---|---|---|
| 0.00 | — | — | — | — | — |
| 0.05 | — | — | — | — | — |
| 0.1 | — | — | — | — | — |
| 0.5 | — | — | — | ? | + |
| 1.0 | — | — | ? | + | + |
| 2.0 | — | —* | + | + | + |
| 4.0 | — | —* | + | + | + |
| 8.0 | — | + | + | + | + |
| 10.0 | — | + | + | + | + |

*Rancidity was noted questionably in three of the five trials at these levels of contamination.

Reprinted from Michigan Agricultural Experiment Station Quarterly Bulletin, Vol. 28, No. 4, May, 1946.

TABLE 2

The change in titratable acidity and pH during storage when various percentages of raw milk were added to homogenized milk

NOT HOMOGENIZED

| Addition of raw milk (%) | Titratable acidity and pH at 0 hrs. Acidity % | pH | 1 day Acidity % | pH | 2 days Acidity % | pH | 4 days Acidity % | pH | 7 days Acidity % | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 |
| 0.05 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 |
| 0.1 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 |
| 0.5 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.5 | 0.16 | 6.6 |
| 1.0 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.5 | 0.16 | 6.5 | 0.16 | 6.6 |
| 2.0 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.5 | 0.16 | 6.5 | 0.16 | 6.6 |
| 4.0 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.5 | 0.16 | 6.5 | 0.16 | 6.5 |
| 8.0 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.5 | 0.16 | 6.5 | 0.16 | 6.5 |
| 10.0 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.5 | 0.16 | 6.5 | 0.16 | 6.5 |

HOMOGENIZED

| Addition of raw milk (%) | Titratable acidity and pH at 0 hrs. Acidity % | pH | 1 day Acidity % | pH | 2 days Acidity % | pH | 4 days Acidity % | pH | 7 days Acidity % | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 |
| 0.05 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 |
| 0.1 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 | 0.17 | 6.6 |
| 0.5 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 | 0.17 | 6.6 | 0.17 | 6.6 |
| 1.0 | 0.16 | 6.6 | 0.16 | 6.6 | 0.16 | 6.6 | 0.17 | 6.5 | 0.17 | 6.5 |
| 2.0 | 0.16 | 6.6 | 0.16 | 6.5 | 0.17 | 6.5 | 0.17 | 6.5 | 0.18 | 6.5 |
| 4.0 | 0.16 | 6.6 | 0.17 | 6.5 | 0.17 | 6.5 | 0.18 | 6.5 | 0.19 | 6.5 |
| 8.0 | 0.16 | 6.6 | 0.17 | 6.5 | 0.18 | 6.5 | 0.19 | 6.5 | 0.20 | 6.5 |
| 10.0 | 0.16 | 6.6 | 0.17 | 6.5 | 0.18 | 6.5 | 0.19 | 6.5 | 0.21 | 6.5 |

During these same 7-day storage periods, the titratable acidity of the contaminated homogenized milk increased from 0.16 per cent to approximately 0.21 per cent (Table 2). Little increase in titratable acidity was noted when the increments of raw milk added were 0.05 per cent or 0.1 per cent. Generally a 0.01-per cent increase in titratable acidity would be detected by organoleptic examination. The pH of the mixture decreased in 7 days from 6.65 to 6.5.

At the levels of raw milk contamination used, questionable positive phosphatase readings were noted in three of the five trials when 0.1-per cent raw milk was added to the milk. Positive readings were not noted in the fresh mixture when 0.05-per cent raw milk was added. However, in two of the five trials positive readings were obtained on the raw milk-homogenized milk mixture, when 0.05-

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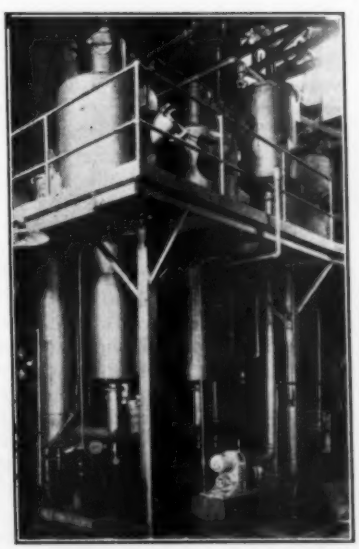

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per cent raw milk was added and the mixture held 7 days. This observation would seem to be in accord with Leahy and Associates (2) who state that certain organisms produce phosphatase in quantities sufficient to detect when they occur in numbers over 2,000,000 per cubic centimeter (plate count). However, bacteria counts were not made on the samples to verify these numbers.

These data indicate that the phosphatase test is a far more reliable test in the detection of raw milk in homogenized milk than is the organoleptic examination for rancidity.

### *Effects of raw milk contamination of non-homogenized milk on the phosphatase test and on the development of rancidity*

When the same milk not homogenized, but pasteurized, was contaminated with similar increments of raw milk, not even slight rancidity occurred except when relatively large percentages of raw milk were added and the mixtures held from 4 to 7 days. Likewise, the titratable acidity increase was very small and appeared to be within the limits of experimental error. However, slight decreases in pH were noted. On the other hand, the phosphatase tests showed readings identical to those obtained with homogenized samples containing the same corresponding percentages of raw milk.

### *Observations on phosphatase tests as applied to homogenized milk*

Perry and Doan (3) reported no differences in results when phosphatase tests were made on the same milk, homogenized and non-homogenized. The results here confirm this, referring only to the intensity of blue in the alcohol extractions. There was a distinct difference, however, in the color of the tests of the homogenized and non-homogenized samples after the addition of the indicator, but before the alcohol extraction. It seems advisable to point out this difference in color, owing to the practice sometimes followed, of eliminating the extraction when it appears to be unnecessary. The milk-buffer substrate-B.Q.C. mixture was always darker in the non-homogenized than in the homogenized tests. This could easily lead to confusion, particularly when both homogenized and non-homogenized milks are tested in the same series. This suggests that the alcohol extraction must be mandatory and not optional. The color difference is obviously not one of phenol content, as is proven by comparing the extractions. It is owing no doubt to the physical change caused by homogenization.

When making the phosphatase test on homogenized milk it is important to mix the reagents very gently; otherwise a jell forms in the alcohol layer and reading is difficult. Rather vigorous mixing of the non-homogenized samples did not produce a jell. Repeated mixing at 5-minute intervals over a period of 20 minutes did not result in deeper colored alcohol layers in the non-homogenized tests. In testing either kind of milk, the alcohol extraction is complete after two or three gentle inversions of the tubes.

**TABLE 3**

**The detection of various percentages of raw milk added to homogenized milk as determined by the phosphatase test.**

**NOT HOMOGENIZED**

| Addition of raw milk (%) | —Phosphatase reading* at— 0 hrs. | 1 day | 2 days | 4 days | 7 days |
|---|---|---|---|---|---|
| 0.00 | — | — | — | — | — |
| 0.05 | — | — | — | — | — |
| 0.1 | —** | —** | —** | ± | ± |
| 0.5 | + | + | + | + | + |
| 1.0 | + | + | + | + | + |
| 2.0 | + | + | + | + | + |
| 4.0 | + | + | + | + | + |
| 8.0 | + | + | + | + | + |
| 10.0 | + | + | + | + | + |

**HOMOGENIZED**

| Addition of raw milk (%) | —Phosphatase reading* at— 0 hrs. | 1 day | 2 days | 4 days | 7 days |
|---|---|---|---|---|---|
| 0.00 | — | — | — | — | — |
| 0.05 | — | — | — | — | — |
| 0.1 | —** | —** | —** | ± | ± |
| 0.5 | + | + | + | + | + |
| 1.0 | + | + | + | + | + |
| 2.0 | + | + | + | + | + |
| 4.0 | + | + | + | + | + |
| 8.0 | + | + | + | + | + |
| 10.0 | + | + | + | + | + |

*Key: —, negative test; +, positive test; ±, less than 2 Sharer blue units.
**Questionably positive tests in three of the five trials.

## SUMMARY

Observations with respect to development of rancidity, titratable acidity, pH and phosphatase tests were made on five series of homogenized and non-homogenized milk to which various increments or raw milk had been added. During storage at 40 deg. F. raw milk-contaminated homogenized milk increased in titratable acidity, decreased in pH and developed rancidity. The contamination could be detected positively by the phosphatase test when 0.5-per cent raw milk was added, questionably when 0.1-per cent was added but not when 0.05-per cent was added. The level of contamination detectable by organoleptic examination depended largely upon the length of the storage period. In general, at 24 hours' storage, contamination of homogenized milk with raw milk must be at least 4 per cent before rancidity can be detected by taste and smell. In no case could organoleptic examination detect the addition of 0.1-per cent raw milk when mixtures were held 7 days at 40 deg. F. Extracting the phenol with butyl alcohol should be a required step and not optional in the phosphatase test, particularly when applied to homogenized milk.

### LITERATURE CITED

(1) Dorner, W. and Widmer A. 1931. Recanalissement du Lait par l'Homogenization. Le Lait 11: 545-567.

(2) Leahy, H. W., Sandholzer, L. A. and Woodside, M. R. 1940. Possible Errors in the Phosphatase Test Resulting from Bacterial Growth in Milk. Jour. Milk Technol. 3: 183-188.

(3) Perry, N. A. and Doan, F. J. 1941. Studies on the Phosphatase Test and Its Application to Processed and Treated Milks. Jour. Dary Sci. 24: 369-382.

## JAMES H. BURNAP DIES

### Was Assistant Manager of CP Toledo Sales Branch

James H. Burnap, assistant to the manager of the Toledo sales branch of The Creamery Package Mfg. Company, died suddenly of a heart attack in his home, 1325 Collingwood Blvd., Toledo, Ohio, on Thursday, July 11. He was 41.

Mr. Burnap was a graduate of Harvard University and Massachusetts Institute of Technology. He was a member of Collingwood Presbyterian Church, the

James H. Burnap

Toledo Club, the Rotary Club, the Wise Men's Club of the YMCA, and Delta Kappa Epsilon, national social fraternity.

Since 1929 he had assisted his father, J. D. Burnap, who is manager of CP's Toledo branch.

Surviving are his parents, Mr. and Mrs. J. D. Burnap.

Services were held on Saturday, July 13. Burial was at Woodlawn Cemetery.

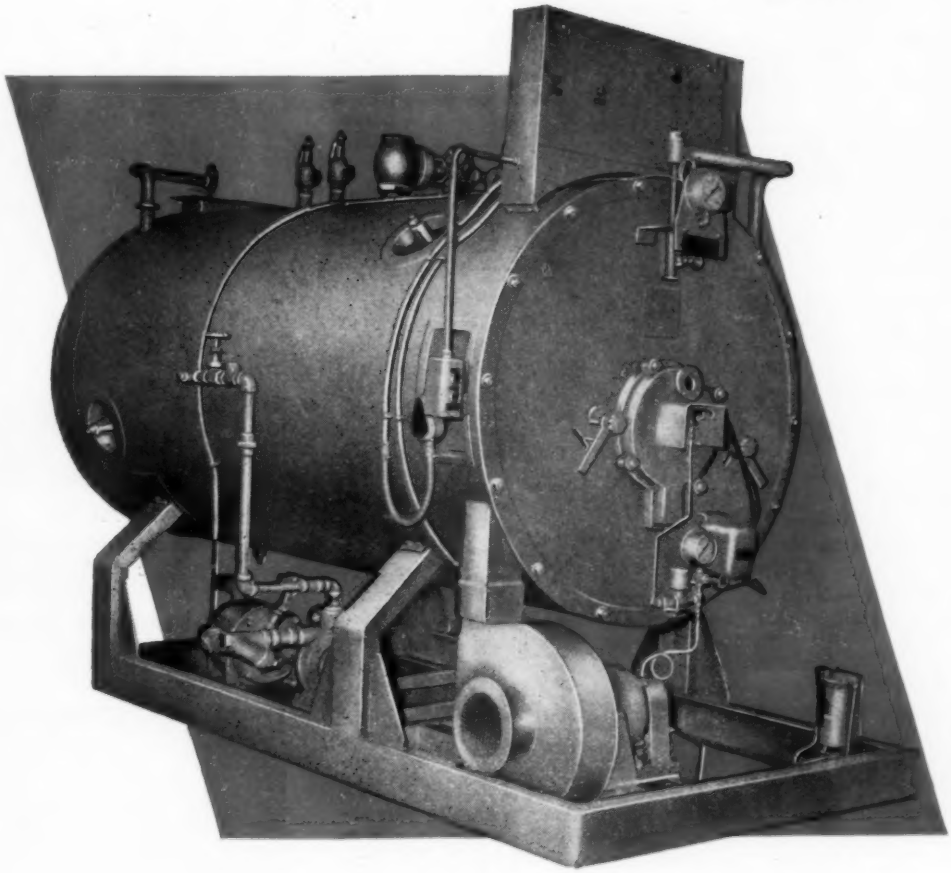
## NEW PLANT ACQUIRED

The Tri-Clover Machine Co., Kenosha, Wis., has recently acquired a new plant in Cudahy, Wis., to increase production of Trialloy and stainless steel sanitary fittings and specialties for the food and dairy industries. This modern plant, formerly occupied by Troy Stainless Steel Products Co., incorporates 125,000 sq. ft. of floor space and includes many new machine tools. It is now in full production, turning out the complete Tri-Clover line of fabricated sanitary fittings and specialties.

As a result of added space and machinery in both the Cudahy and Kenosha plants, Tri-Clover's production capacity today is almost 300 per cent greater than at any pre-war period. This new productive power will permit expansion of the Tri-Clover line to include many new items for use throughout industry.

# OUR EXPERIENCE

## PAYS DIVIDENDS TO YOU



AMESTEAM GENERATOR

Let us show you the AMESTEAM Generator under construction, shop test or actual operation and you will see what our 100 years of experience in the design and construction of boilers can do for your plant.

In designing the AMESTEAM Generator we built into the unit many features that have been proven and tested over the course of our long experience. It is a unit backed by our integrity and our organization.

This wide experience in building, testing and operating these units under all conditions and with all grades of fuel oils and gases is at your service, without obligation. Write, wire or phone for the latest information and literature.

A complete return-to-the-boiler system, including Feed Water Pump and Condensate Tank with their accessories, is part of the standard equipment with every standard AMESTEAM Generator.

**AMES IRON WORKS**

BOX G8 OSWEGO, NEW YORK

# Quick-Freezer Plant

**New Facility at Leith, Scotland, to Benefit Poultry and Egg Producers, Among Others**

Glasgow, Scotland (Special to the "Review").—An interesting quick freeze plant has been developed at Leith, Scotland by the North British Cold Storage and Ice Company, Ltd., for use as and when food and produce is again available in adequate degree. The plant is designed to operate as a commission quick-freeze and storage plant to producers, warehousemen, or owners of produce, game, poultry, eggs or indeed of any type of food product.

It differs in that degree from existing quick-freeze plants now being erected in Britain, these being essentially for the function of processing of a given commodity or range of commodities for a known producer who is also, normally, the owner of the plant.

Under the scheme of operation at Leith any food producer,—one might cite a poultry farmer or egg producer,—could utilize the facilities to preserve a glut against the period, some months ahead, when glut conditions will have been dissipated and a profitable market developed.

### Has Wide Potential

Although it is admittedly not an immediate advantage inasmuch as the problem is to find food rather than to preserve it for months, the time is visualized when the availability of quick freeze facilities will materially assist producers in meeting periodic variation in supply and demand.

The plant in use is new in type for this purpose although not new in principle. It has been developed successfully on herring and other products. The freezing chamber is 10x30x10 feet high and is insulated all around by 6 inches of slab cork on a 6-inch concrete raft. It carries two rails, each of which holds 5 trucks while the chamber is closed.

Above the trucks run a battery of 80 galvanized gilled cooling coils with four airscrew-type propeller fans on the wall. These fans circulate a very considerable volume of air over and around the trucks which are loaded with the commodity to be frozen, cooling them to a temperature close to that of the ammonia within the coils. Air velocity varies from 600 to 1,200 feet per minute, and gives a temperature of around minus 30 deg. F. when fully operating.

### Remote Control Provided

Control is by remote distance control thermometer, while gauges check the efficiency of the air velocity thus giving an index to the accuracy of uniform freezing.

Adjoining the chamber is a holding store suitably insulated into which the trucks are wheeled and the produce stored.

Packers using this service will be asked to dress or prepare the product to the maximum extent previous to bringing it forward for freezing. By doing so, the cost of processing can be limited to a minimum and the work of preparation left in the hands of the skilled operatives. An estimate of cost based on experimental operation shows that the plant can freeze and store for, a period of perhaps 6 months, for one penny per pound of produce or at 1/6 per stone.

In the case of meat, chicken, poultry, game, it is essential that the produce comes in the form of sliced or otherwise limited bulk, since bulk is a factor of vital importance in the process, two inches being a maximum bulk in thickness.

## INDIANAPOLIS SITUATION

**Drivers' Union Agitates for Return of Daily Milk Deliveries**

Indianapolis, Ind. (E.B.)—Milk here increased last week 2c a quart, making current prices 17c a quart; cream, 18c a half pint; chocolate drink, 18c a quart, buttermilk 13c a quart and cottage cheese 20c a pound and 18c for 12-ounce cartons.

C. Winfield Hunt, executive secretary of the Milk Foundation of Indianapolis, said that the increase is not a profit-making move and actually does not constitute a breach of the "hold the line" policy. The increase was made because of a demand by producers for more money to take the place of subsidies from the Government.

Immediately, the local officials of the teamsters union, demanded a return to early morning deliveries daily. The dairies issued statements that there was no intent on their part to change the every-other-day delivery plan. The union asserts that daily delivery would spread employment, but admits that commissions of drivers would be lowered appreciably. Many drivers now earn as much as $350 or more a month.

Hunt charged that housewives are not complaining about the skip-delivery system, which was inaugurated as a war measure to save manpower and equipment.

C. C. Hadley, executive secretary of the Indiana Dairy Products Association, predicted that producers would begin rebuilding their herds, many of which were reduced or disposed of in the last few years because of shortages and uncertainty over the future.

## SERVICEMEN RETURN

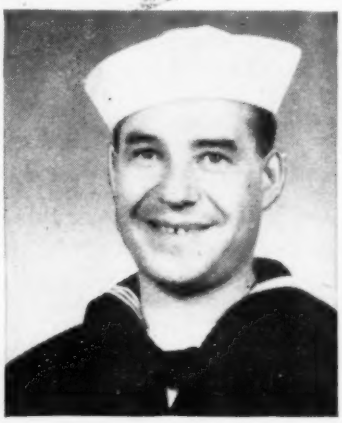
**Perfection Milk Filter Disc Men Resume Jobs After War Servi**

T. Robert Sullivan, vice president and sales manager of the Schwartz Manufacturing Co., Two Rivers, Wis., manufacturers of Perfection milk filter discs, Fray-Seal cheese bandages, and other dairy

Joseph Burns

industry products, announces the return to the sales force of James Linder and Joseph Burns.

Linder, who served in the Navy, and Burns in the Army, are well known in dairy supply circles. Both are again



James Linder

covering their pre-war territories for Perfection milk filter discs and other Schwartz cotton products for the dairy industry.

Burns' headquarters are in Chicago, and Linder's in Minneapolis.

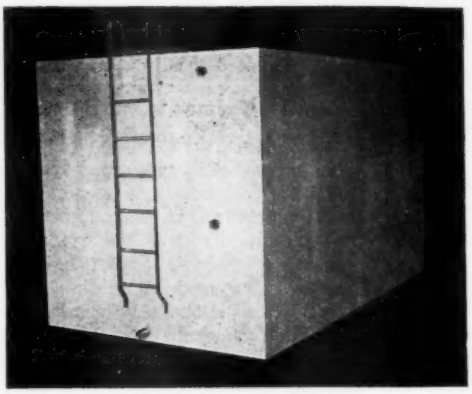
## VERMONT GETS CHEESE PLANT

Cabot, Vt.—Roman Kurz and his two sons, Robert and Harry, have opened the B. & K. Cheese Company here. Milk will be purchased from nearby milk plants for the present and Italian, Greek and Swiss type cheese will be produced.

# SORCO SPECIALTIES

## SORCO

### STAINLESS STEEL MILK STORAGE TANKS



Requires Small Space For Capacity
Well Insulated — Vermin Proof
Easy to Keep Sanitary

EARLY DELIVERIES

**Capacities**

1000 to 5000 Gallons

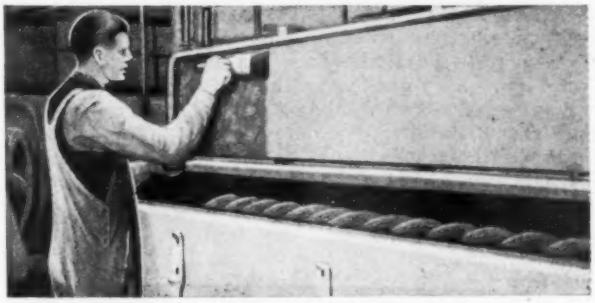
*Write for Specifications and Prices*

## SORCO

Specialized Dairy Equipment

- **Turbin-Heaters for Hot Wells**
- **Condensed Milk Coolers**
- **Hot Wells**
- **Cheese Vats**
- **Weigh Cans**
- **Receiving Vats**
- **Compact Sample Cabinets**
- **SORCO Test Bottle Washers**
- **Steam Cleaners**

Special Fabrications
Built to Your Order



1ts BRUSH TIN ON LIKE PAINT
Just mix CROMATIN powder with water and apply with brush, like paint.

## RETIN

### VATS and TANKS with CROMATIN

CROMATIN (Sorensen's RETIN) is a specially prepared tin alloyed with Chromium — is 3 TIMES HARDER than ordinary tin. It can be used on practically any metal surface except aluminum and lead. Flavor of contents in vat or tank positively not affected. The use of CROMATIN often saves costly and time-consuming repairs, and restores to service vats or tanks considered ready to scrap.

For sweating sanitary fittings to stainless steel pipe, Cromatin has no equal.

### GUARANTEED 5 YEARS

*Satisfied users for over a decade. "Your Money Back If It Turns Black." 1 pt. $12.00 — covers approximately 200 sq. ft. Send check or money order or we will ship C.O.D. or to rated firms bill 2% 10 days.*

2nd USE BLOW TORCH AND WIPE
CROMATIN makes a smooth level surface fused to metal. Wiping produces lustre.

## The SORENSEN CO.

Dept. M. R. - 4033 - 23rd Avenue South
MINNEAPOLIS 7, MINNESOTA

# New Frozen Meal

**Maxson Reveals Development of Special Turkey Item — Tested Successfully in Several Markets**

A new, luscious frozen food item, developed by Maxson Food Systems, Inc., of New York—sliced turkey and dressing with gravy—has come through test marketing with flying colors and now is being made generally available to the housewife through stores, it is announced by the company.

This is the second single package item of frozen foods developed by Maxson. The first, presented earlier in the year, was frozen French fried potatoes. These have taken hold with such popularity

Wm. L. Maxson

that they now have reached distribution in all parts of the country and, in addition to the 10-ounce package put up for the housewife, are also being packed in 2¼ pounds for restaurants, hospitals, clubs, and the like.

Maxson's is the company which has provided some 500,000 complete frozen meals served all over the world by Naval Air Transport Service and by Pan American World Airways. Similar service has been contracted for recently by Northwest Airlines, Royal Dutch, and Swedish Intercontinental.

The turkey item, which required many months of test-kitchen experimentation at the company's Queens Village, Long Island, plant, has achieved such encouraging popularity that distribution is fanning out swiftly from New York, the original production and distribution center.

Turkey meals in full, including two vegetables, have been put up for many months by Maxson for airline service, but the packaging of turkey alone is a new step by the company.

The process begins with the selection of turkeys of high standards of quality. They are cooked, boned, and sliced, then brought to the assembly line where attendants weigh the portions and place them in special envelopes. Each envelope contains a portion weighing 6 ounces, constituted of turkey, dressing, and giblet gravy. Two 6-ounce servings are packed together.

The ingredients are: Turkey, turkey stock, water, bread, vegetable shortening, onions, turkey gizzards, celery, turkey livers, salt, corn starch, flour, eggs, beef extract, sugar, garlic, caramel coloring, parsley, spices and flavoring.

Maxson Food Systems, Inc., has issued the following instructions for preparation: To Keep—store in freezing compartment of refrigerator until ready to use.

To Prepare for Serving—1. Preheat oven to 400 deg. F. 2. Place frozen portions side by side on pie tin or similar shallow utensil and cover with loose fitting lid. 3. Place covered pan on top rack of gas oven or bottom rack of electric oven. 4. Heat for 25 minutes at 400 deg. F. Remove and serve immediately.

## NUMBER 1 IN BRITAIN

**Need for More Milk Heads the Problems of the Food Plan**

Glasgow, Scotland *(Special to the "Review")*.—Milk is still priority number one in the British food plan, Minister of Agriculture Tom Williams told farmers in London recently and the coming years must see an intensified effort to get the extra milk needed.

Reason for this continued demand despite very considerable production increases is, of course, the fact that consumption is soaring as never before, and throwing an impossible strain on producers. In the opinion of the Minister, the present intensive demand stimulated by the system of priorities which we are operating, will insist on the limitation of supplies to the general public until as far off as 1947. In the year ended September 1942, the producers sold 1,079 million gallons of milk, but three years later, in the year just ended, sales have increased to about 1,200 million gallons and there is still a shortage. Priority consumers, babies, pregnant women and invalids are getting an additional supply at the expense of the general consumer. School children have been brought into the scheme to an extent which would not have been ever contemplated previous to the inception of war-time feeding. All these priorities limit the available supply for the average non-priority consumer.

The winter milk position is regarded here with some optimism, but there are no indications that we shall get any more than the two pints per adult per week which we are presently getting and gladly accepting.

Meantime, the activities of the Milk Marketing Board as distributors of dairy equipment,—a matter which is worrying those trades normally concerned to sell such equipment,—has brought a strong retort from the displaced interests. The National Federation of Ironmongers, the Agricultural Machinery and Tractor Dealers Association and the Dairy Appliance Manufacturers and Distributors Association, Ltd., have combined to petition the Milk Marketing Board to cooperate in retailing rather than to start a cut-throat war in which all interests would suffer.

## NAMES SERVICE HEADS

**Fred W. Thomas to Have General Administrative Control of New Division**

Announcement that Fred W. Thomas, Minneapolis, will have general administrative control of the company's farm service division was made recently by Harry A. Bullis, president of General Mills. In his position as director of formula feeds, Thomas coordinates the company's formula feed operations.

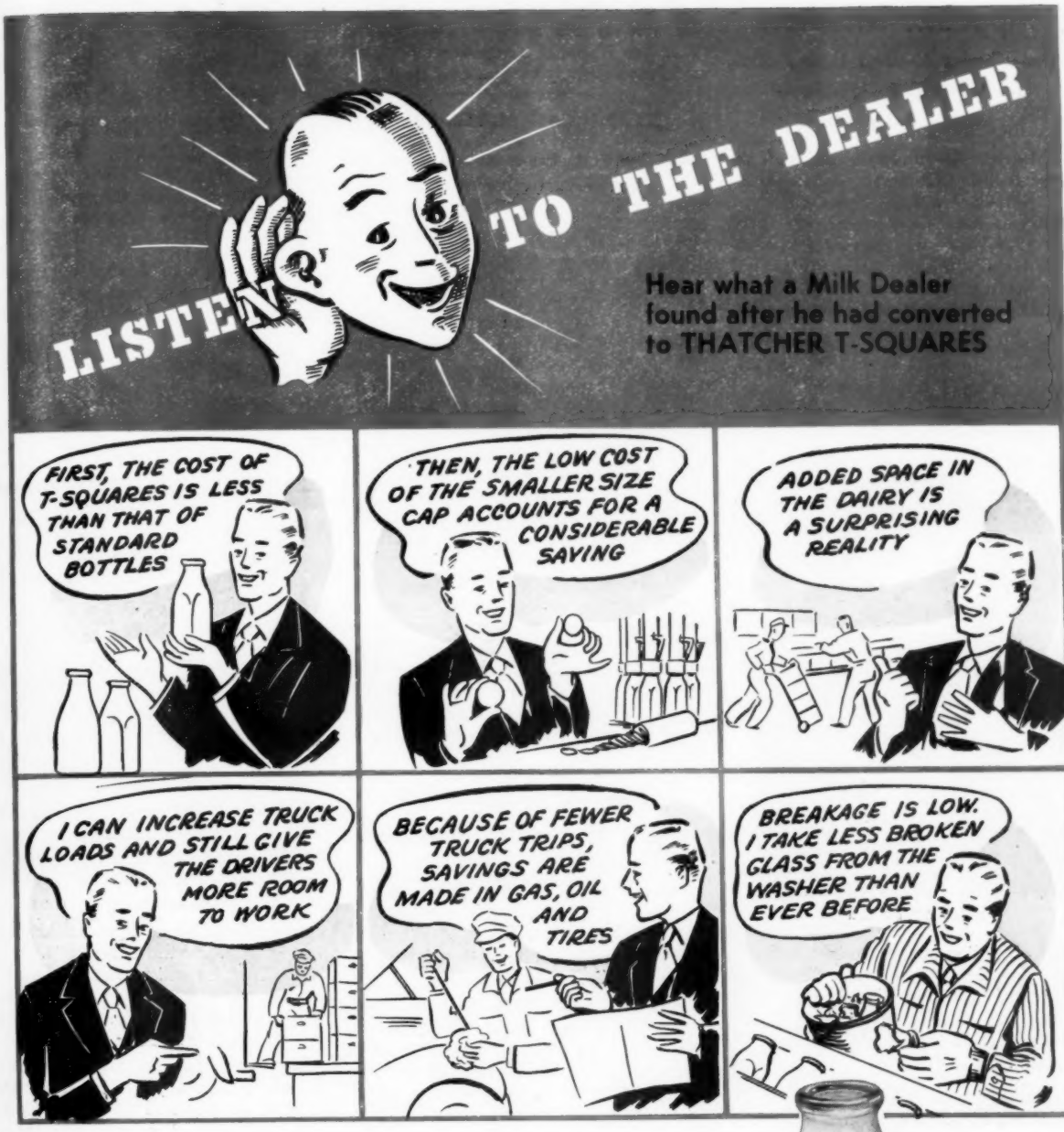
Other changes in General Mills' farm service setup are announced by L. R. Jamison, division president. George Pritchard, former assistant general manager of the division's northeastern district, has been named general manager of the west central district. Pritchard joined the farm service organization in 1930 as a store supervisor.

Chester W. Jenson, formerly general manager of the West Central District, has been transferred from Minneapolis to San Francisco, where he will assume new responsibilities as general manager of the Western District.

R. E. Eikenberry, well known in the farm supplies industry and former administration executive for the farm service division, has been transferred from Minneapolis to Miami, Florida, to take up new duties as assistant manager of the southeastern district.

Clark C. Madsen, recently placed on inactive duty with the U. S. Navy as a Lieutenant Commander, has been appointed assistant secretary and division operations control manager.

General Mills' farm service division, with 69 stores, is divided into four districts: western, west central, northeastern, and southeastern, with headquarters in San Francisco, Minneapolis, Buffalo, N. Y., and Miami, respectively. Division headquarters are in Minneapolis. L. N. Sloan and W. L. Adams are general managers of the northeastern and southeastern districts, respectively. Jenson, Sloan, and Adams are also division vice presidents.


LISTEN TO THE DEALER
Hear what a Milk Dealer found after he had converted to THATCHER T-SQUARES
FIRST, THE COST OF T-SQUARES IS LESS THAN THAT OF STANDARD BOTTLES
THEN, THE LOW COST OF THE SMALLER SIZE CAP ACCOUNTS FOR A CONSIDERABLE SAVING
ADDED SPACE IN THE DAIRY IS A SURPRISING REALITY
I CAN INCREASE TRUCK LOADS AND STILL GIVE THE DRIVERS MORE ROOM TO WORK
BECAUSE OF FEWER TRUCK TRIPS, SAVINGS ARE MADE IN GAS, OIL AND TIRES
BREAKAGE IS LOW. I TAKE LESS BROKEN GLASS FROM THE WASHER THAN EVER BEFORE

Words of experience—results that count.

Thatcher T-SQUARES have demonstrated the claimed merits in actual installations . . . time after time. You, too, can have the cost reducing advantages of Thatcher T-SQUARES by planning now to convert as soon as it becomes possible.

THATCHER

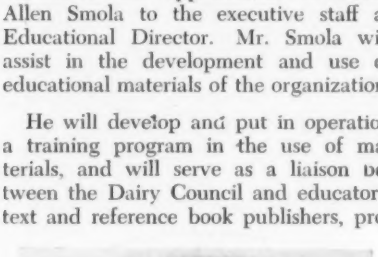
MANUFACTURING COMPANY, ELMIRA, N.Y.

## Appoints Director

**National Dairy Council Names F. A. Smola to Head Up Educational Activities**

Chicago, Ill.—In furtherance of the National Dairy Council's general expansion program, Milton Hult, president, announces the appointment of Frank Allen Smola to the executive staff as Educational Director. Mr. Smola will assist in the development and use of educational materials of the organization.

He will develop and put in operation a training program in the use of materials, and will serve as a liaison between the Dairy Council and educators, text and reference book publishers, pro-



Frank Allen Smola

ducers of audio-visual materials, and related educational technicians. Through Mr. Smola's activities the Council will expand and develop even further its well entrenched position in the field of education.

Exceedingly well-qualified for the new assignment, Mr. Smola has had an interesting career in the educational field. He received his Bachelor of Arts degree from Notre Dame, his Master's degree in Economics from Northwestern University, and is presently working on his Doctorate degree in Administrative Education from the University of Chicago. He has also done graduate work at Yale University.

Mr. Smola is a member of a number of professional and educational organizations and long has been active as a leader in the National Education Association of the United States.

His practical experience as a teacher in elementary and secondary schools, principal of elementary and high school, superintendent of schools, and as college and university instructor will prove very valuable in the newly-created position with the National Dairy Council — the local market daily by Board of Health.

### EXPAND CAN ADVERTISING

**Wide Publicity Program Scheduled for the Next Twelve Months**

Over twenty-two million full page messages will speak for the steel-and-tin container during each of the next twelve months, in a renewed program announced by Gordon E. Cole, Advertising Director of the Can Manufacturers Institute. For the fourth consecutive year this schedule will top a million dollars in billing.

The Can Manufacturers Institute Campaign will spread to many points of the promotional compass, aimed at the consumer, dealer, producer, and professional fields as well. Schedules are planned in eight leading national magazines and fifteen journals in educational, nutritional, and other fields as well. Direct mail will also be used.

A story of canned food nutritional values will appear in professional publications addressing government nutritionists, home economists, dieticians, teachers, doctors, and nurses. Nutrition booklets, sent through direct mail channels, will be another web of communication which the Can Manufacturers Institute will use.

### ROTATION OF PASTURES

**Prof. E. L. Worthen Urges Practice to Increase Crop Production**

Schenectady, N. Y.—Rotation pastures are generally better than permanent pastures, according to Prof. E. L. Worthen of the New York State College of Agriculture, Ithaca.

"For those of you who have land that is at all suited to cropping," Prof. Worthern told his farm audience in a General Electric Farm Paper of the Air address over WGY, "I would suggest what we call rotation pastures. That is, use a seed mixture that is good for both hay and pasture. Cut hay for one or two years and then graze the meadow for a year or two before it is plowed. The carrying capacity of such hay-land pastures is generally greater than even improved permanent pastures."

For more summer green feed, Prof. Worthen recommended sudangrass as an annual crop, and alfalfa or ladino clover, or both, in the hay-seeding mixture for a good aftermath growth from hay fields.

"Remember that cows that get all the good quality green feed they can eat in July, August and September produce more milk in October and November," he pointed out.

*Hold Your U. S. Bonds*

## O-I Appointment

**K. C. White Named Sales Promotion Manager to Succeed H. A. Trumbull at Owens-Illinois in Toledo**

Kenneth C. White, general sales manager of Libbey Glass, division of Owens-Illinois Glass Co., has been appointed Sales Promotion Manager of the company's glass container division.

Announcement of the appointment, effective August 1, was made by Smith L. Rairdon, vice president and general sales manager of the glass container division. Mr. White succeeds Howard A. Trumbull who resigned recently to form his own research concern.

Mr. White has been associated with the glass industry for nineteen years,

Kenneth C. White

starting his career as a general line salesman in 1927 for the Southern Glass Co. at Los Angeles which was purchased by the Illinois Pacific Coast Co. in 1931. Owens-Illinois Glass Co. purchased the latter concern in 1932.

Mr. White became sales manager of the coast company's food and dairy divisions in 1935 and was made manager of the San Francisco branch in 1941.

In 1944 Mr. White became general sales manager of Libbey where he has been responsible for all of this division's sales and sales promotion activities.

Most of Mr. White's duties at Libbey are being assumed by William M. Beckler who has been named manager of sales of table glassware and R. W. (Rip) Rogers who continues as manager of sales of industrial products, according to John H. Wright, vice president and general manager.

Concordia, Kan.—M. J. Nicholls, after 34 years of service with the Beatrice Foods Company, has retired. Glenn Eveson from Topeka will manage the local plant in Mr. Nicholl's place.

# Dry Milk Usage

**Women's Conference at Chicago Convention Obtains Factual Data About Dried Product for Use in the Home**

The properties, uses, and problems of dry milks were discussed before a large group of women from the rural areas of 23 states and the larger cities, at the luncheon meeting presided over by Mrs. J. Laning Taylor, director of the Educational Department, National Cooperative Milk Producers Federation in Chicago, December 5. The meeting was in conjunction with the 29th annual convention of the Federation.

Greetings of welcome were given by John Brandt, president of the oganization, in which he stated that the interest of the women was a good sign for the future of the organization. Charles W. Holman, national secretary, also welcomed the ladies and explained that the Federation is made up of 74 groups covering 45 states and 350,000 farm families.

A general picture of the background of the dry milk industry was presented by Harry R. Leonard, chairman of the board of directors, American Dry Milk Institute, and general manager of the Twin City Milk Producers Association, St. Paul.

In 1916, said Mr. Leonard, the industry produced 16 million pounds of dry milk, and in the current year this has been upped to 600 million pounds. The gain in this dairy product is larger than that of any other in the dairy industry, even though this branch is the baby of the dairy industry. The American Dry Milk Institute was founded in 1925 and now includes over 85 per cent of the producers.

Scientific research at many universities has proven the value of nonfat milk solids, and has shown that two-thirds of the value of the whole milk is to be found in the nonfat solids. The Army recognized the value of nonfat milk solids and used it extensively in feeding troops and in feeding liberated civilians. Other dry milk products include dry whole milk, dry buttermilk, dry ice ceam mix, and dry whey.

Of the market for nonfat dry milk solids, bakers take about 55 per cent, ice cream manufacturers about 14 per cent, and the meat industry about 6 per cent. These three industries represent 75 per cent of the total domestic use of the product. There are many other uses, but as yet household use has not been developed. Nonfat dry milk solids is not a substitute for fluid milk, but makes it possible to supplement many foods with extra valuable milk solids. Dry whole milk is now on the grocery shelves in many cities.

Mr. Leonard exhibited two loaves of bread, one made without any milk and the other containing 6 parts of nonfat milk solids to each 100 parts of flour. He pointed out that the loaf containing the milk was equal nutritionally to whole wheat bread, based on growth promotion with growing young animals.

There is still 34 billion pounds of fluid skim milk left on the farms in 1941. The dry milk industry has a capacity to produce 1¼ billion pounds of the product, but the domestic market up to this time has consumed only about 450,000 pounds. This means that later additional milk solids will be available for export. and the American Dry Milk Institute has already made plans to develop export markets. Mr. Leonard urged the ladies present to sell themselves on the greater use of nonfat milk solids in home cooking.

**Per Capita Consumption**

Dr. Ethel Austin Martin, director of Nutrition Service, National Dairy Council, told the group of the nutritive value of dry milk. Mrs. Martin said there was not enough milk in all forms being used. The per capita consumption of milk today is about one pint daily and the recommended use is set at one pint for adults, one quart for children, and more for adolescents and nursing mothers. While it is true that no one is the average, some consumers get no milk at all.

USE LO-BAX —THE SURE WAY TO KILL FAST-BREEDING BACTERIA!

Protect your milk, cream and dairy products from bacterial contamination by sanitizing with LO-BAX . . . *especially during warm weather when bacteria multiply faster.*

Lo-Bax, the concentrated, fast-killing chlorine bactericide, helps prevent milk spoilage and improves quality standards by rigidly controlling bacteria and sanitizing all surfaces with which milk or cream comes in contact.

Easy to handle—Lo-Bax kills bacteria almost instantly . . . at low cost. It contains 50% available chlorine, dissolves quickly in water—hot or cold, hard or soft—to make clear dairy rinse solutions.

Order Lo-Bax from your supply house today! In the plant and on the farm, it's just what you and your milk producers need for safe, sure control of bacteria this summer.

THE MATHIESON ALKALI WORKS (INC.)
60 E. 42nd St. • New York 17, N. Y.

*Pioneer Manufacturers of Chlorine Products for Nearly Fifty Years*

**LO-BAX**
**50% AVAILABLE CHLORINE**

**LO-BAX SPECIAL**—a superior chlorine bactericide in granular form—packed in 2½-lb. bottles, ½ doz. to the case; and in 1-lb. bottles, 1 doz. to the case.

**LO-BAX POWDER**—a highly efficient chlorine bactericide packed in 1¾-lb. bottles, 1 doz. to the case.

**Mathieson**
LO-BAX
**CHLORINE BACTERICIDE**
**50% AVAILABLE CHLORINE**

Lo-Bax . . . Super-Nufos . . . HTH-15 . . . Dry Ice . . . Carbonic Gas . . . Ammonia, Anhydrous & Aqua . . . Caustic Soda . . . Soda Ash Bicarbonate of Soda . . . Liquid Chlorine Chlorine Dioxide . . . PH-Plus . . . Synthetic Salt Cake . . . Sodium Chlorite Products Sodium Methylate

A survey made in 1936 showed that three-quarters of the people were deficient in riboflavin and about one-half of them in calcium, two of the nutritional essentials supplied generously by milk. In 1942, a similar survey showed that one-half of the people were deficient in riboflavin and one-third in calcium. This improvement was brought about by an increase of 25 per cent in milk consumption. There is today still a deficiency in riboflavin and calcium intake in the American diet.

There is no surplus of milk in terms of human needs. We have not yet attained the ideal milk consumption. There is a challenge to the dairy industry to increase milk consumption in the nation, guarding against displacing one type of milk with another, which is neither helpful to the dairy industry nor to the improved nutrition of the nation. Mrs. Martin presented charts showing the great improvement in riboflavin and calcium and other nutritional factors, produced by cooking cereals with milk as against cooking them with water. She also showed the great improvement of nutritive value of bread by the use of milk solids.

### Household Techniques

A very interesting demonstration of household techniques in the use of dry milks in the kitchen was presented by Miss Rachael Reed, director of consumer service, The Borden Company. Miss Reed stated that the wartime experience has shown that the best foods were those that were highly nutritious, easy to prepare, economical, easy to store, and when in their final form looked good and ate well. Dry milks measure up to these specifications. Four and one-half ounces of dry whole milk is equivalent nutritionally to a quart of fluid milk. There is great value in increasing the milk solids in many foods. Miss Reed demonstrated how easy it is to fill a covered jar about half full of water and then add the proper amount of milk solids, shaking well for only a minute or two, to prepare a suspension which can be used as fluid milk.

Miss Reed also demonstrated how easy it is to incorporate dry milk in water with a beater. In the making of white sauces of various kinds, she recommended the use of discarded vegetable water for suspending the dry milk, making use of an otherwise wasted product which has nutritional value. By using double quantities of nonfat dry milk solids Miss Reed showed a great improvement in baking powder biscuits and in custards. Other homemade foods in which double quantities of nonfat milk solids can be used to advantage are souffles and cream soups. If cream of tomato soup has to stand for some time, Miss Reed pointed out that those made with dry milk will remain in good condition without curdling for a longer period.

### Food Enrichment

The final speaker of the interesting session was Dr. Henry T. Scott, director of Biological Research, Wisconsin Alumni Research Foundation, who spoke on "Compulsory or Optional Food Enrichment". Dr. Scott pointed out that the addition of iodine to salt, and vitamin D to milk, were two examples of voluntary enrichment of foods. The present enrichment program started with the world war and was based largely on the number of rejections of draftees. The removal of the germ and the bran in the milling of wheat caused concern about the use of white flour. The lack of thiamine in the diet results in improper digestion of sugar and causes nervous disorders.

Riboflavin is another of the vitamins needed in the American diet, stated Dr. Scott. The dairyman has practically a monopoly on riboflavin, since milk is the principal natural source. If everyone had a quart of milk a day, there would be no need for enrichment. The trouble with the dairy people is that they have too much to talk about in their product as compared with other foods. There are twelve factors in the B-complex and some day they may want to incorporate all of them in flour and bread. Mandatory inclusion of vitamins and minerals in foods leads to a false security in the selection of foods.

During the war the nation was regimented, but in peacetime it is distasteful to tell people what they must eat. The big problem is to educate the public. If there is an attempt to force these products onto consumers by law, there will be apathy on the part of the public.

Dr. Scott was glad that vitamin D in milk was not placed on a mandatory basis because the growth of its use has been sound. He is of the opinion that bakers and millers will provide enriched flour and enriched bread, due to competition and due to the demands of the public, if it be so desired. There is much to be said for the optional program in preference to the compulsory one. Dr. Scott showed a series of slides indicating the results of vitamin deficiencies on human health.

A display in the room by the American Dry Milk Institute, Inc. gave the women opportunity to see many commercial foods in which nonfat dry milk solids is an ingredient and also to examine the loaves of bread which Mr. Leonard had displayed from the platform. At the luncheon the ice cream served was made from dry ice cream mix supplied by the Rochester Dairy. Three types of cookies in which large amounts of nonfat dry milk solids had been used as an ingredient were also served.

## AWARD TO BOWMAN

### Prominent Chicago Dairy Honored by Federated Advertising Club

For outstanding achievement in special promotion advertising, Bowman Dairy Co. has been presented the Chicago Federated Advertising Club's 1945 Award. The coveted award won by Bowman was in recognition of the dairy company's book entitled, "Celeste".

Copies of "Celeste," a book about a baby calf, were distributed to thousands of children throughout the midwest in response to their requests. The book was offered as a special feature on the Bowman Musical Milkwagon Radio Show over Station WMAQ. Demands for the book were so great that Bowman is having another printing readied for Autumn distribution.

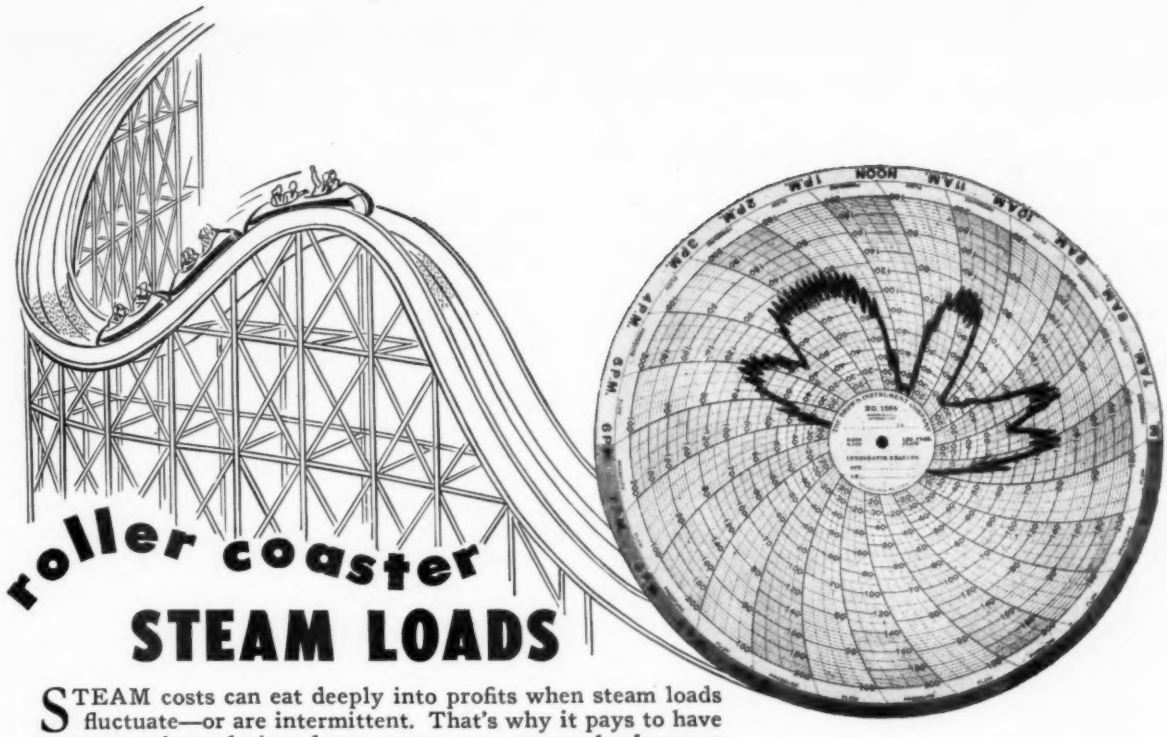
Artwork of the book was executed by Albert Kner and Suzanne Suba. A new three dimensional "Slottie" toy called, "Celeste", appears in the back of each book. The toy is punched out and fitted together—a surprise and lots of fun for children.

## HOWE SCALE APPOINTMENT

Richard F. Straw, vice-president in charge of sales, Howe Scale Company, Rutland, Vermont, announces the appointment of J. G. McCarty as Pittsburgh branch manager, succeeding Mr. H. J. Steidley, retired.

Mr. McCarty served as engineering inspector (scales) for the United States Bureau of Standards covering forty-eight states and later was affiliated with the Streeter-Amet Company, Chicago, Ill., as field engineer.

He joined the Pittsburgh branch of the Howe Scale Company as service engineer in 1941.

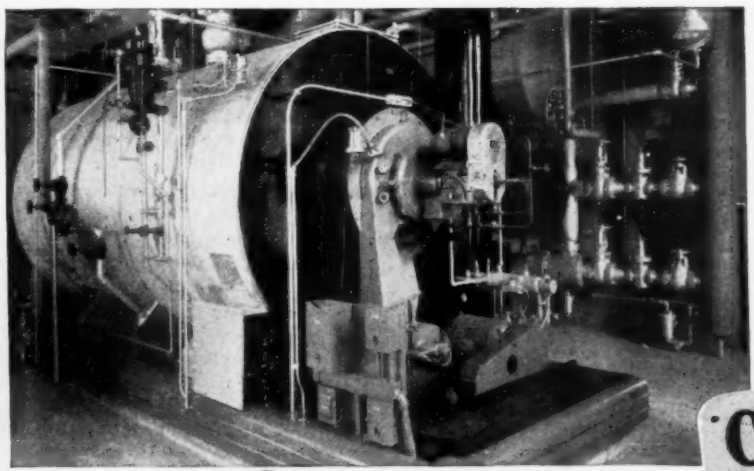


# roller coaster STEAM LOADS

STEAM costs can eat deeply into profits when steam loads fluctuate—or are intermittent. That's why it pays to have a steam plant designed to meet your steam loads most efficiently.

With a Cleaver-Brooks Steam Generator you are equipped for "roller-coaster" steam loads. Whether the demand is heavy or light—steady or variable—these custom-planned, sturdy, compact steam generators respond instantly and operate at a flat 80% efficiency with full or fluctuating load. A Cleaver-Brooks Steam Generator is thrifty with fuel at all times. Since it need not be "banked" during no load periods it saves this expense. Its low operating and maintenance costs, through the years, are established facts to many owners of Cleaver-Brooks steam generators. It will pay you to investigate—write for complete information.

**CLEAVER-BROOKS COMPANY, 348 E. Keefe Ave., Milwaukee 12, Wisconsin**



**WRITE on your business letterhead** for the Free Steam Cost-Calculator — a ready-reference slide rule showing the comparative steam costs when using oil or coal as fuel.

### Custom-planned —

Every Cleaver-Brooks Steam Generator is built to the measure of an individual plant's needs, and Cleaver-Brooks assumes full responsibility for the satisfactory selection and initial operation of the unit.

A qualified engineer analyzes load conditions, space and machinery arrangements. After installation, a factory engineer puts the steam generator into operation and trains plant employees on its operation, care and maintenance.

### Self-contained and "packaged"

Delivery consists of a "packaged" unit. Connections to service outlets are all that is needed. No smokestack is used — a simple vent carries away all products of combustion. No extra foundation is required. Compact — the unit fits into limited space and low headroom locations. Sizes: 22 models — 15 to 500 hp; pressures 15 to 200 lbs. p.s.i.

### Money-making performance—

The Cleaver-Brooks Steam Generator is designed for easy operation and low upkeep cost. Operation is at 80% efficiency from full load down to 30% of its rating. The high heat transfer from the 4-pass, down-draft boiler produces fast steaming. A boiler room as clean as the home or office is possible through use of oil for fuel.

**Cleaver-Brooks**
**STEAM GENERATORS**

# DISA Exposition at Atlantic City to Supply the Answers

**Desires of the Dairy Trades Obtained in Order to Theme the Show Properly — Equipment Representatives Will Answer Questions**

WASHINGTON, D. C.—Above and beyond any other single benefit, dairy processors taken as a group want from the Dairy Industries Exposition this year information on cutting costs by labor-saving devices and efficiencies in plant operation, according to a late report from Dairy Industry Supplies Association Headquarters here.

This is what more than three-fourths of a carefully selected group of nearly a hundred independent, successful, representative dairy processors from Coast to Coast replied in answer to DISA's query. "What are the chief significances for you and your company that you foresee in this year's Show?" The "Show" is the great Fifteenth Dairy Industries Exposition which will take place the week of October 21-26 in Atlantic City—first such Show since before the war. A record-breaking attendance is expected, as indicated in reports elsewhere in this issue of the "Review."

In a successful attempt to feel out the public opinion DISA went directly to dairy processors, who are, of course, the Exposition's "public." Here are some other things the suppliers and equippers learned:

### Three Seconds

Next and equal in importance to cutting costs are:

1. The opportunity to see new equipment. Whatever is new—the processors are eager to see it.

2. An equal number feel that in the opportunity to meet again face to face with equippers and suppliers to discuss problems and developments, and to exchange ideas, lies an outstanding potential benefit of the Show.

3. Identical emphasis is placed on discovering what has been learned during the last five years' research, by suppliers or others, affecting dairy processing and dairy products distribution.

### Two Thirds

In matched third place of importance are:

1. The chance to find out WHEN equippers and suppliers will be able to make deliveries.

2. First-hand information about improved sanitation devices, practices, methods, advancements.

### Other Notables

Not of numerical but of side-light significance are these returns from the poll:

"We want to learn how to improve the quality of our product..."

"Can you help show us how to spark personnel into a better appreciation of the importance of their jobs?"

"Light on dairy products export prospects..."

Pointers toward "simpler and clearer regulations, simpler patron and milk procurement arrangements, simpler equipment, plant processing methods, sanitary controls, and distribution arrangements..."

How to maintain high volume milk and dairy products consumption.

### Comment — General

A. Processors make it clear that they need and will buy new equipment; they'll spend liberally if they can minimize over-all costs.

B. They're literally hungry for information. They want to "talk shop," to "see old friends and make new acquaintances."

### Comment — Individual

Typical: more or less at random:

"...the majority of dairy processors of the nation are small dealers and the investments made in dairy equipment now will affect their buinesses for the next five to ten years..."

"...the general trend of attempting to reflect high prices to producers, and possibly to cut back or completely absorb government subsidies, means development of more specific economies which members of your organization are in the prime position to do."

"Efficiency and labor-saving seem of greatest importance."

"No one can doubt that with increasing labor costs, better mechanical handling becomes a great factor in our business."

"...with the constant squeezing of margins, nearly all manufacturers are looking for equipment that will increase efficiency and at the same time reduce labor costs."

"...we would especially like to see machines in operation—not just diagrams..."

DISA President Robert Rosenbaum

"We hope the manufacturers...will be able to tell the industry what they WILL be able to supply us rather than what they cannot do."

"Our industry MUST have the facts on equippers' and suppliers' delivery possibilities."

"...to me it means primarily an opportunity to renew old acquaintances and at the same time receive information worthwhile in the operation of a modern dairy processing plant."

"DISA is of the opinion," said the headquarters' spokesman, "that this thoughtful, realistic and constructive commentary from representative dairy processors should be passed on not only to the 250 suppliers and equippers who will exhibit at the Show, but to other dairy processors as well."

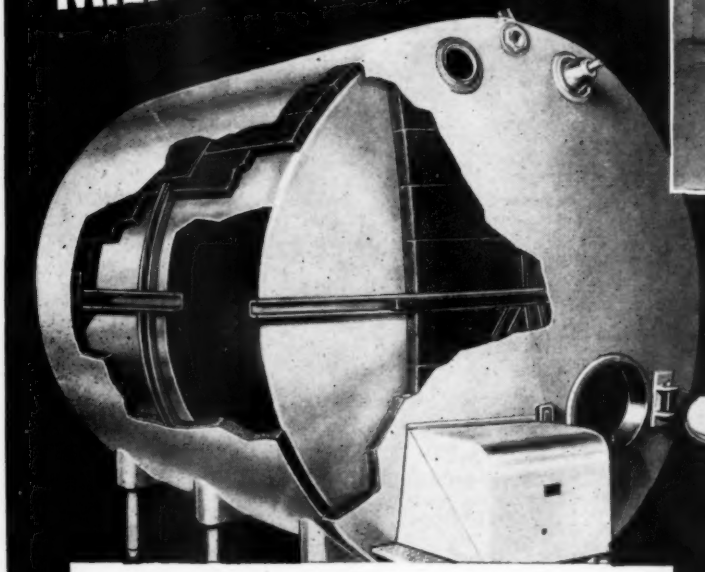
## POST GUARANTEES

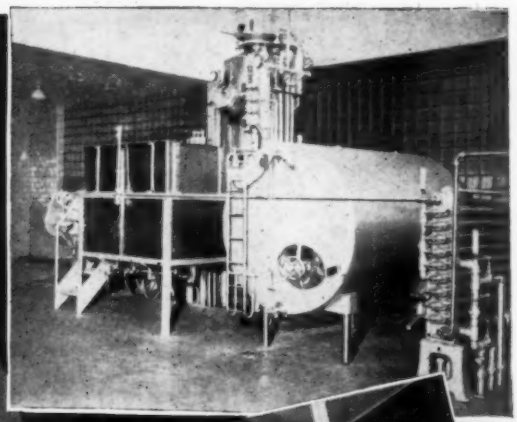
Albany, N. Y.—Upwards of $5,000,000 in cash, government bonds and surety bonds posted by milk dealers doing business in New York State is being held by the Division of Milk Control of the Department of Agriculture and Markets as a guarantee that the dealers will pay their obligations to the dairy farmers who sell their milk to them.

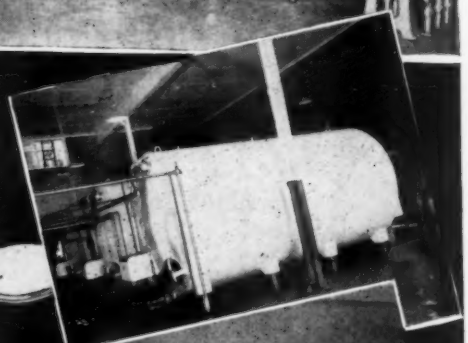
The semi-annual report on the value of securities filed by licensed milk dealers for protection of producers discloses $3,789,880 in surety bonds, $363,474 in cash and $618,616 in United States and New York State bonds for a total of $4,771,970 filed by 868 dealers since the current licensing period began on April 1.

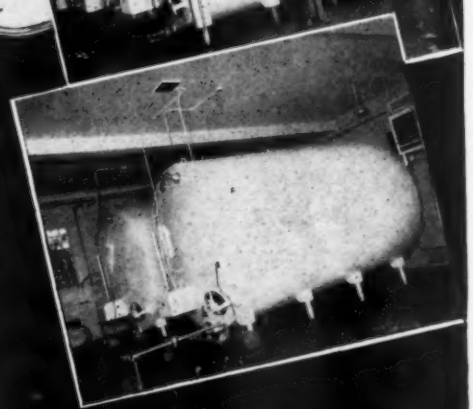
In the 12 months from April 1, 1944 to April 1, 1945, $4,556,942 was posted by 834 dealers; from April 1, 1945 to April 1, 1946, $4,639,015 was posted by 850 dealers. These sureties have climbed consistently since the 1936-37 period, when they were only slightly in excess of $2,000,000.

# Sani-Certified STAINLESS STEEL MILK STORAGE TANKS









THE sturdy construction, improved insulation, and easy cleaning of Sani-Certified Milk Storage Tanks have made them favorites of many dairy operators throughout the country. These tanks are constructed for either vertical or horizontal installation with capacities to meet specific requirements. As shown in above illustration, a full two inch sealed cork insulation eliminates metal to metal contact to give greater temperature and moisture protection. The smooth seamless inner shell of stainless steel is encased by a sturdy outer jacket and rigidly supported by reinforcing angle irons. External threading for all fittings allows for waste removal and cleaning.

Write now for complete information on these tanks and other equipment needed. Our engineering department maintains a free advisory service to assist you in selecting equipment best suited to your purpose.

- MILK STORAGE TANKS
- TRUCK TANKS
- TRAILER TANKS
- WEIGH CANS
- RECEIVING VATS
- HOT WELLS
- CREAM COOLERS
- ICE CREAM MIX TANKS
- COOLING VATS
- PASTEURIZERS
- HOPPERS

SPECIAL EQUIPMENT FOR THE INDUSTRY

SANI Certified

WRITE FOR INFORMATION

STAINLESS & STEEL PRODUCTS COMPANY

1000 BERRY AVE. ST. PAUL 4, MINN.

# Prices Justified

**Increases to Consumers Being Passed Back to Producers to Encourage Greater Milk Production**

Indianapolis, Ind. — The increased consumer prices being announced by dairy companies in Indiana are only reflecting adjustments in prices made to dairy farmers by Indiana dairy companies, it was stated recently in Indianapolis by C. C. Hadley, Executive Secretary of the Indiana Dairy Products Association, Inc.

Dairy farmers will now receive their entire pay check for their milk and cream direct from the companies rather than part of it from the company and another part from a government agency, since dairy subsidy payments of approximately sixty-five cents per hundred pounds of milk, and seventeen cents per pound of butterfat were discontinued July 1.

More than $600,000,000.00 of taxpayers' money was used nationally in 1945 to pay subsidies for milk and butterfat production payments. These payments amounted to approximately one and one-half cents per quart of milk, twelve to fifteen cents per pound of butter, six to seven cents per pound of cheese and proportionate increases for ice cream and other manufactured dairy products.

Corn and wheat prices were raised fifteen to twenty-five cents per bushel by OPA during May, and increases of $10.00 to $14.00 per ton were granted by OPA at the same time for protein feeds fed to dairy cows. Increased operating costs have been experienced by farmers as well as milk processing companies.

Mr. Hadley stated that the price adjustments being made would make it possible for dairy farmers to continue producing milk and cream even though an estimated one million dairy cows were liquidated from the nation's dairy herds in 1945 due to inadequate returns under inflexible government regulations. Milk and cream production in Indiana for the first six months of 1946 was less than for the similar period in 1945, but consumers can now expect to receive eventually adequate supplies of milk and milk products.

## COUNTISS MAKES CHANGE

**Prairie Farms Creameries Head Joins Pfister Associates**

Chicago, Ill.—J. B. Countiss, manager of Prairie Farms Creameries, Illinois Agricultural Association affiliate with 10 downstate Illinois member creameries, has tendered his resignation to take effect October 1, when he will become sales manager for Pfister Associated Growers at El Paso, Ill. Countiss will head the sales organization for the 25 associated companies with 2,800 salesmen scattered throughout the Midwest and Canada.

Under Countiss, the Illinois Agricultural Association started cooperative creameries for farmers in 1933. Since then the organization has grown to include creameries at Moline, Bloomington, Peoria, Champaign, Olney, Carbondale, Mt. Sterling, Galesburg, Carlinville, Mt. Carroll and Henry with plants and equipment today worth an estimated $2,000,000.

Last year Prairie Farms Creameries produced 6½ million pounds of butter, besides milk powder, cheese, condensed milk, and other dairy products. Since organization of the creameries in 1933, Countiss estimates they have sold $75,000,000 worth of milk and cream products for farmer patrons.

Mr. Gurley is a 1925 graduate of the University of Illinois College of Agriculture and came to the IAA from the Peoria Creamery Company.

## T. R. SILLS & CO. MOVES

The Chicago home offices of Theodore R. Sills & Company, public relations counselors, moved on July 2 from 43 East Ohio Street to Suite 1020, 39 South LaSalle Street, Chicago 3.

The firm's New York office is located in Suite 412 at 502 Park Avenue, New York 22.

Postwar expansion had intensified a long-felt space shortage at the old address. The new offices provide almost a 100 per cent increase in floor space, and are in the suite recently vacated by Trans World Airlines.

Theodore R. Sills opened a public relations agency in Chicago in 1932, following newspaper and advertising experience. It now employs 40 persons and is retained by 15 clients, its activities including direction of employee, stockholder and press relations, as well as the conduct of national programs.

## AMENDS CINCINNATI ORDER

Washington, D. C.—To provide milk poducers supplying the Cincinnati, Ohio, market with an increase of 40 cents per hundredweight in the price they receive for fluid milk and cream, U. S. Department of Agriculture has amended Order 65, which regulates milk handling in that area. The amendment became effective July 1.

This action, increasing the Class I and II per hundredweight prices from $3.80 and $3.35, respectively, to $4.20 and $3.75, brings the Cincinnati price increase in line with the increased producer prices authorized for all fluid milk markets by the Office of Economic Stabilization on May 29.

# Dairy Conference

**University of Illinois Plans Three-Day Sessions at Urbana in November — Varied Program Set**

Urbana, Ill.—The annual University of Illinois Dairy Manufactures Conference will be held at Urbana, November 5-7. The first day will be devoted to topics of interest to field men and others concerned with the problems of milk procurement. On the second and third day problems related to the manufacture and distribution of dairy products will be discussed. Some of the important topics scheduled are:

Prof. P. H. Tracy

1. A Milk Quality Symposium
2. The "Self Cleaning" Separator
3. Germicidal Effect of Quaternary Ammonium Compounds
4. Ice Cream Stabilizers and Whipping Agents
5. Manufacture of Cottage Cheese
6. Frozen Whole Milk
7. Powdered Milk and Mix
8. Milk Can Washing
9. Recent Advances in Heating Engineering
10. Insect and Rodent Control in Food Plants

A limited number of out-of-town visitors can be accommodated by local hotels. Reservations should be made early by writing directly to the hotel of your choice. Where possible two or more should arrange to use one room. The addresses of the larger local hotels are as follows:

Inman—University and Walnut, Champaign.

Hamilton—110 West Park, Champaign.

Tilden Hall—Weil and Hill, Champaign.

Urbana Lincoln—Broadway at Green, Urbana.

# NOW *Enjoy* COMPLETE CAN WASHING ...IN MINIMUM SPACE

**DAMROW ROTARIES**

**IN 3 TYPES**

HANDLE 2½ TO 4 CANS AND COVERS PER MINUTE

You crowd really scientific can-washing efficiency into surprisingly little floor space—with a DAMROW ROTARY. Using typical Damrow washing stages, similar in effectiveness to Damrow Straightline Washers, a Rotary will give you sweet, sterile, thoroughly clean, *Cold Air Dried* cans and covers at a minimum of cost for power, steam and water — handling a wider variety of cans and covers, pails, and ice cream containers and even bottles.

If your floor space or production demands a Rotary Washer, you'll find your best investment is a DAMROW.

## 3 MODELS TO FIT YOUR NEEDS

1. **Type "K"** (Illustrated) Handles 4 cans and covers per minute, with linked covers.
2. **Type "J"** — 4 cans and covers per minute. Also handles large neck gallon bottles, milk pails, ice cream containers, and cans up to 25" high.
3. **Type "RP"** — Hand operated 2½ cans and covers per minute. Linked or loose covers.

***Check the Coupon for Details . . .***

**DAMROW**

COMPLETE EQUIPMENT FOR THE DAIRY INDUSTRY

*Damrow Bros. Co.*

204 Western Avenue, Fond du Lac, Wisconsin

Please send me details on Damrow Rotary Can Washers.
Capacity.....cans and covers per minute.

Firm .....

Address .....

.....

## Railroad History

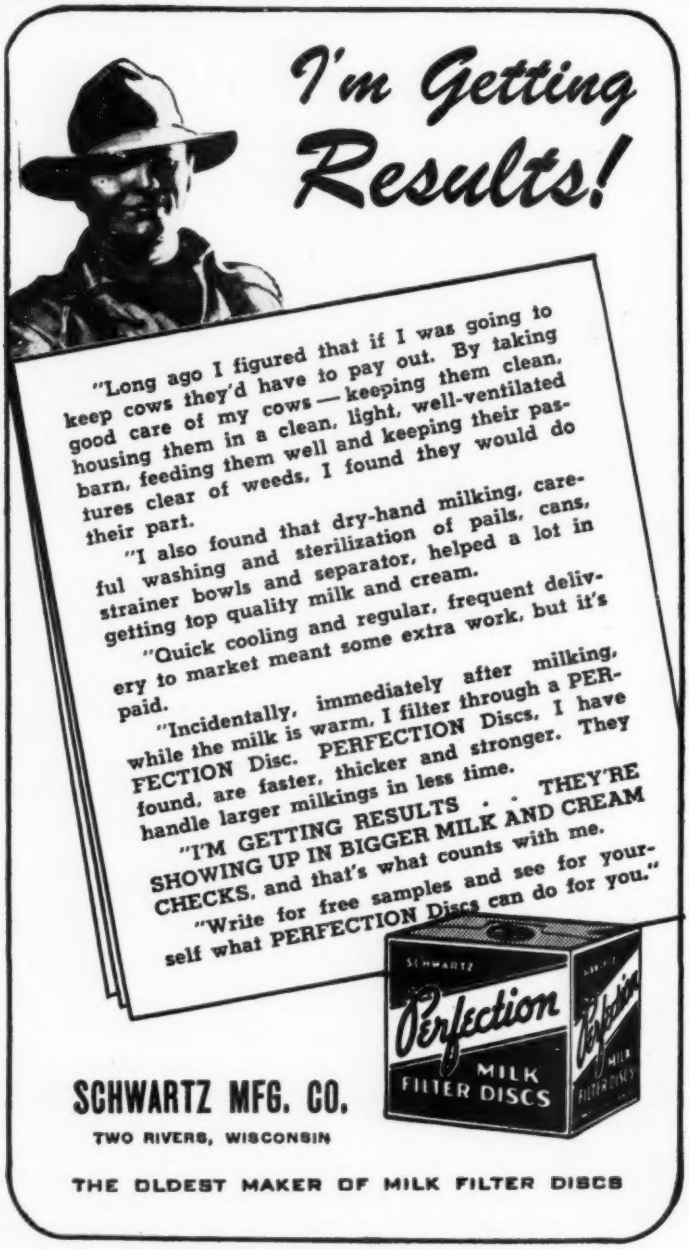
**Union Pacific Issues Booklet Outlining Pioneering Developments to Become Great Transportation System**

Written in an entertaining and informative manner, the Union Pacific Railroad has just completed for distribution a thirty-two page booklet entitled "Union Pacific Railroad — A Brief History."

One of the dramas of the West — the building of a vast railroad system that united the East with the West and the driving of the last golden spike, is unfolded for the reader briefly in a pleasing style and at the same time based upon authentic data pertaining to railroad history. The names of many notables who attended the ceremony in driving the last spike to link the rails at Promontory Point, Utah, and the story of the celebration itself is particularly entertaining.

The story of the difficulties encountered in building the vast Union Pacific system in the early days of the far west cause a much greater appreciation for the important part that the railroads play in present-day American enterprise and economic life, as well as for national defense.

Copies of this interesting aand factual booklet may be obtained by writing to E. C. Schmidt, Executive Assistant, Union Pacific Railroad, Omaha 2, Nebr.



I'm Getting Results!
"Long ago I figured that if I was going to keep cows they'd have to pay out. By taking good care of my cows — keeping them clean, housing them in a clean, light, well-ventilated barn, feeding them well and keeping their pastures clear of weeds, I found they would do their part.
"I also found that dry-hand milking, careful washing and sterilization of pails, cans, strainer bowls and separator, helped a lot in getting top quality milk and cream.
"Quick cooling and regular, frequent delivery to market meant some extra work, but it's paid.
"Incidentally, immediately after milking, while the milk is warm, I filter through a PERFECTION Disc. PERFECTION Discs, I have found, are faster, thicker and stronger. They handle larger milkings in less time.
"I'M GETTING RESULTS . . . THEY'RE SHOWING UP IN BIGGER MILK AND CREAM CHECKS, and that's what counts with me.
"Write for free samples and see for yourself what PERFECTION Discs can do for you."
SCHWARTZ
Perfection
MILK FILTER DISCS
SCHWARTZ MFG. CO.
TWO RIVERS, WISCONSIN
THE OLDEST MAKER OF MILK FILTER DISCS


## Named to DISA Post

**George F. Rowe Appointed Executive Assistant with Equipment and Supply Association**

George F. Rowe recently joined the staff of the Dairy Industries Supply Association as executive assistant, dealing with all phases of DISA's work. A native of Wisconsin, he has been an information specialist in the U. S. Department of Agriculture for the past six years, lately as specialist assistant to the Director of Information of the Department. In USDA he was in charge of numerous special wartime promotion campaigns, including victory gardens, home canning, emergency farm recruitment and 8-point dairy program. The

George F. Rowe

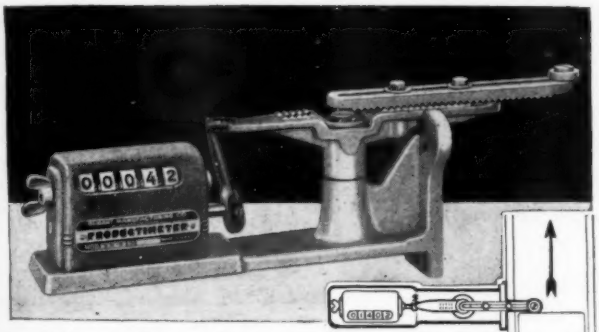
campaigns which Mr. Rowe directed last year received a national award from the American Public Relations Association for outstanding achievement in public relations.

Earlier he was a research and publicity aide to Senator LaFollette for two and one-half years. Author of a booklet and numerous articles on a variety of subjects, he is a graduate of the University of Wisconsin and has a master's degree in political science from the University of Chicago. His record has been outstanding in his earlier employments.

In the further gearing and applying of its activities to postwar requirements in the industry both Mr. Rowe and James D. Shaw, a DISA staff veteran of more than a decade, will serve as responsible aides to Robert Everett, Executive Vice-President.

### NEW LOUISIANA MILK PLANT

Crowley, La.—Plans for the construction of a milk pasteurizing plant here are well advanced. Floyd Trahan and Henry Zeigler are backing the venture.




*Production Control*

**begins with counting!**

**PRODUCTIMETER Case Counters**

register exact count of outgoing or incoming cases on your conveyor lines. Put to work for you, they count loads for various routes . . . reveal losses . . . prevent errors of guessing . . . check daily or weekly production . . . provide figures for accurate inventories.

**Supplied for two directions of travel, for either side of conveyor.**

***Send for your copy of Catalog No. 10 with complete details on Case, Bottle and Electric Productimeters!***

**DURANT MANUFACTURING COMPANY**

1989 N. Buffum Street, Milwaukee 1, Wisconsin
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A "NATURAL"

**Now Available . . .**

**HART'S**

**100% Pure**

**FRESH—FROZEN**

**CALIFORNIA**

**ORANGE JUICE**

**Naturally Sweet, Delicious and Colorful Vitamin-Full**

**NOW** available in consumer-size containers. Ready to deliver (along with milk) right to the doorstep — to serve each breakfast with that necessary Vitamin C the year 'round.

**SAVES** the housewife in cost, in time, in fuss and muss — a real contribution. Easy to store and to handle.

**HART'S** is specially juiced from fruit selected to give the finest tree-fresh flavor, color, natural sweetness and high Vitamin "C" content. 'Tis frozen fresh, pure and sweet — a "natural" for year 'round sales volume. Dairy franchises now open.

HART'S CITRUS PRODUCTS COMPANY OF CALIFORNIA

**LA HABRA, CALIFORNIA**

## Wants Branded Butter

**Dairy Industry Leader Sees Danger in Mixing Product of Various Manufacturing Areas**

Glasgow, Scotland *(Special to the* "Review") – Although Britain is still buying butter and margarine as such and not as brands, there is a strong feeling in the supplying industries that the time has come to differentiate between sources of supply. It is contended, for instance, that better quality should be demonstrated,– where it exists,– by the adoption of a policy of branding these commodities according to their source of origin. In Australasia the producers have have made comment on this point, indicating that the policy of mixing all makes to produce a standardized brand of butter or margarine is not in the best interests of quality production.

Britain is actually more concerned at this present time to produce quantity of food consistent with reasonable quality than to produce maximum quality with moderate quantity, and for that reason there may be some delay in adventing to the pre-war system.

Commenting on the point at the annual meeting of the Empire Dairies, Ltd., in Aukland, Major J. R. King stressed the need to sell New Zealand and Australian butters as such and not to mix them with those produced in other countries when he said that producers had accepted the objectionable practice because rationing made it difficult to do otherwise than mix butters. The practice however was, he thought, dangerous to the future of butter marketing.

**Cites Reasons for View**

He voiced the view that Danish butter being made for quick consumption would not keep fresh for any length of time. On the other hand, Australian and New Zealand butters were made expressively to keep during transit to the United Kingdom and after being defrosted there. A mixture of the two kinds would always be unsatisfactory, but would be disastrous where the Danish butter was off quality. The managing director of Empire Dairies in England, J. E. Hunt, had, he said, reported serious complaints in the United Kingdom due to the mixing.

Major King added that strong representations on the subject had been made to the New Zealand Government and hoped that the Dominion Dairy Board and the Australian Dairy Board would follow the matter up energetically.

T. Flood Plunkett, M.L.A. chairman of the Australian Board, said recently that the Australian view was that it would be desirable for Australian butter to be marketed in England under its own brand and through its own agencies as before the war. There had been complaints as to the quality of some Danish butter, he said, and to mix it with a large proportion of New Zealand and Australian butter would not help these British Dominions to maintain the good name of their butters on the British market.

### BUFFALO FIRM FINED

For violation of War Food Orders 8, 79, and 79.54 during 1943, 1944 and 1945, the Nagel Dairy, Inc., of Buffalo, New York was fined a total of $2,500 on five counts in U. S. District Court, Western District of New York, on July 1, by Judge John Knight.

Pleas of *nolo contendere* were entered to the five counts by the defendant corporation. Other counts were dismissed.

The corporation was charged with violation of the above War Food Orders in that, during 1943, 1944, and 1945, they were guilty of over-utilization of milk solids in excess of quota in the production of ice cream mix, and in the delivery of milk equivalent of cream in excess of quota. Both were in violation of WPB Conservation Order M-271.

The evidence in this case was obtained by special agents of the Compliance and Investigation Branch of the U. S. Department of Agriculture, operating under Leslie K. Horn, Compliance Officer of the Northeast Region.

### OPENS LAW OFFICE

Charles M. Fistere, formerly executive secretary of the Dairy Industry Committee, announces that he has resumed a general and administrative law practice in Washington, D. C.

Mr. Fistere is prepared to handle all legal matters before federal courts, various government departments, commissions, boards and agencies.

The address of Mr. Fistere's new office is Carey Building, 927 Fifteenth St., Washington 5, D. C.

### BEATRICE EXPANDS

Butler, Mo. – Beatrice Foods Company, manufacturers of Meadow Gold products, has taken over the plant and business of the Letton Ice Cream Company. The Letton firm and has been making ice cream here for over forty years. In the future they will operate the ice plant.

### BANNAR OPENS SALES BRANCH

Kermit, Texas.–The Bannar Creameries of Abilene have recently opened a sales department here under the management of H. D. Carroll.

## Accident Prevention

**Land O'Lakes Creameries Launches Campaign in Cooperation with National Farm Safety Week**

A little Indian girl who has been electrocuted, crushed in an auto wreck, thrown for a loss by tripping over tools she forgot to put away, and carted off to the hospital numerous other times, is back on her job in the interest of safety.

This poster is one in a series, prepared as part of a long range accident control program supervised by W. E. Boie, safety director at the Land O' Lakes Minneapolis office.

Featuring "Lolly," the Land O'Lakes Indian girl, the cartoon-type posters employ a sprightly technique which attracts attention with a message that is quickly understood and remembered. They are credited with helping reduce accidents in midwestern dairy areas– a reduction which brought Land O' Lakes a special award from the Minnesota Safety Council for 1945.

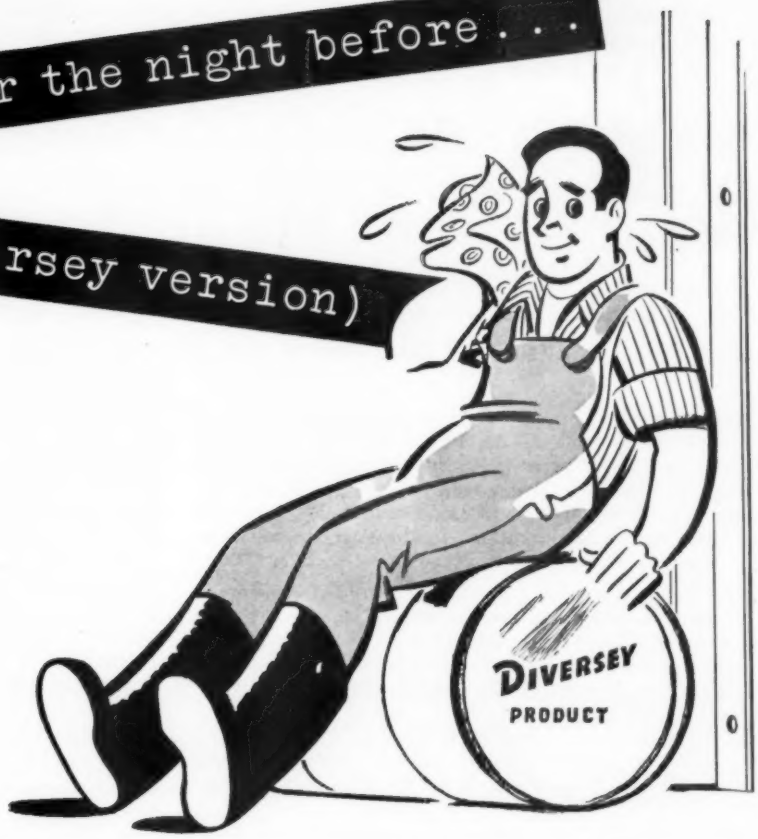
Lolly was "electrocuted" to prove it is not safe to stand on a wet surface while working with electrical connections. The current Farm Safety Week poster shows her reminding: "Take care of small cuts and scratches. Every cut is a possible infection."

In addition to its accident prevention program, now in the sixth year, Land O'Lakes maintains a full time nurse at the main plant in Minneapolis, and has group health and accident insurance for its employes. Safety education is carried to member dairy plants by Rudy Stolen, field public relations director.

"This program has saved time, money, and most important–it has saved health and lives," reports Mr. Boie.

# Morning after the night before . . .

## (Diversey version)




You're looking at the picture of a Diversey D-Man on the morning after. He's had a tough night of it . . . been on the job for over 16 hours at the XYZ plant. But now he can relax . . . another sanitation problem has been licked!

Yes, the Diversey D-Man is much more than merely a salesman. He's a trained specialist in food plant sanitation . . . with applied "know-how" that has put plenty of calluses on his hands. Before any man can represent Diversey he is first given weeks of intensive class-room instruction while his work in the field is constantly supervised by the Diversey Technical Service Department. In the field of food plant sanitation Diversey alone is staffed by such an organization of trained specialists.

***Service That Delivers Results!***

Sure it costs money to put a Diversey D-Man in your plant to service a drum of material . . . or help lick a sanitation problem. But it pays in the long run. The Diversey D-Man delivers results . . . not merely so many pounds of material. That's why more and more food plants look to Diversey for their sanitation requirements. THE DIVERSEY CORPORATION, 53 West Jackson Boulevard, Chicago 4, Illinois.

**DIVERSEY**

*Complete Sanitation Service*

**FOR THE MODERN FOOD PLANT**

### DIVERSEY PRODUCTS FOR THE DAIRY PLANT

**Diversol**—A quick-acting disinfectant combining sodium hypochlorite and alkaline sodium phosphate in crystal form. Disinfects without corroding equipment.

**D-Luxe**—The ideal product for daily hand or machine cleaning of equipment.

**Relion**—A triple-action compound that assures clean, sparkling bottles.

**Mirrolite**—For bottle washing in hard water areas.

**Heavy Duty**—Cleans copper vacuum pans.

**Scalite**—Prevents scale deposits in rinse tanks.

**Everlite**—For removing scale and encrustations from bottle and can washing machines, vat coils, condensers, and other equipment.

**Novex**—Delivers clean, sweet-smelling cans at low cost.

**Canrite**—Removes milkstone from cans quickly and safely by machine washing.

**Dilac**—Removes milkstone from plate-type pasteurizers.

**Dicoloid**—Used in paste-form to remove milkstone.

# Food Distributor Obligations *Under the* Wage and Hour Law Provisions

## United States Department of Labor Analysis of Application of the Act Gives Pattern of Operation in the Dairy and Poultry Processing Fields

**The "Review" is happy to present herewith a consideration of the bearing of the Fair Labor Standards Act upon the food distribution industry as a whole, specifically products field, which was prepared for publication, by our request, by the Wage and Hour and Public Contracts in its relationship to operations in the dairy and poultry Division of the United States Department of Labor.**

**The Department has found, as a result of inspections in this general field during recent months, that many operators are unfamiliar with the terms and applications of the law, and we deem it extremely important to give here the Department's report of such applications and its interpretation of how necessary observance of all provisions of the Act should be achieved, so that any of our readers whose operations come under these requirements may have accurate information as to the regulatory provisions bearing upon their individual businesses.**

**The following explanation of the application of the Act was prepared and has been submitted to the "Review" under the direction of G. Russell Bauer, head of the Information and Compliance Branch of the Wage and Hour and Public Contracts Division of the Department of Labor whose headquarters are at 165 West 46th Street, New York 19, N. Y.**

**Direct inquiry to this office of the Department, or to any of the other Regional Offices listed at the end of the article, in respect to specific provisions in individual operations, will, we feel sure, receive prompt attention.**

---

NOW NEARLY eight years old, the Fair Labor Standards Act is generally known to food distributors and to American industry as a whole. This Federal wage and hour law applies to employees engaged in interstate commerce or in the production of goods for interstate commerce, including occupation necessary to such production. And, unless specifically exempted by the Act, all such employees must be paid not less than 40 cents an hour and not less than time and one-half their regular rate of pay for all hours worked beyond 40 a week.

Despite these simple requirements, however, Government inspections between July 1, 1945, and April 1, 1946, show that more than 150 employees in about 20 establishments in the dairy and poultry products industry were paid less than the modest 40 cents an hour minimum wage required by the law. These inspections, conducted by the Wage and Hour and Public Contracts Divisions of the U. S. Department of Labor, also reveal that violations of the minimum wage or overtime pay provisions of the law were discovered in more than one-half of the establishments in this industry visited.

It is the policy of the Divisions to concentrate inspections where complaints or other reasons indicate possible violations. Thus, the record of violations discovered among the dairy and poultry products distributors during the nine months just reported do not necessarily mean that the industry as a whole is guilty of general violation, but it would appear that better compliance would be the rule after more than seven years of operation under this basic wage and hour law.

Employers should be interested, also, in the fact that the restitution of back wages paid for minimum wage and overtime pay violations for the nine months amounted to nearly $19,000, as compared with $20,000 for the same purposes in the full year preceding. Furthermore, employers are liable to court action by individual employees, under which the courts are required to grant successful litigants, in addition to the back wages due, damages in an equal amount, plus a reasonable sum for attorney fees, and costs.

### Coverage Discussed

Experience of the Divisions indicates that the vast majority of concerns have little difficulty in determining their status under the Wage and Hour Law—the typical manufacturer shipping his goods to other States, for example, obviously is covered. So is the wholesale establishment that receives goods from another State and sells regularly to customers located in another State. The Divisions consistently have held that employees of these establishments were covered by the Act and the courts have sustained this position in a number of cases, including several that involved Supreme Court decisions.

A common problem presents itself in the case of wholesalers and jobbers who purchase goods from another State but distribute them only to local customers—that is, their selling is entirely *intra*state. What is the status of their employees under the Fair Labor Standards Act? A good many such employers have assumed that they were not engaged in interstate commerce and that their employees were not covered by the minimum wage and overtime provisions of the Act. But the matter is not so simple.

This is well illustrated by a Supreme Court decision which received considerable publicity—the Jacksonville Paper case. Though the Court did not hold that all phases of a wholesale business selling exlusively intrastate were covered by the Act because its purchases were made interstate, it did indicate many situations in which the Act did so apply. The Court made it plain that the test of coverage in this type of case is whether the employee performs work relating to goods with respect to which there is a "practical continuity of movement" from the extrastate source to the intended destination.

### Covered Transactions Listed

The high court's ruling clearly shows that coverage does extend to a wholesaler's employees engaged in the following

*(Please turn to Page 49)*

# ARISTOCRAT
FRESH *Whole* *
# ORANGE JUICE
DAILY BY *AIR!*

*Pure undiluted, unadulterated Juice from "ARISTOCRAT" Tree-ripened Oranges . . . nothing added . . . nothing taken out . . . chock-ful of sunshine-cultured Vitamin C.

## BE THE *First* IN YOUR AREA TO OFFER THIS *NEW* SERVICE!

From the Magic Rio Grande Valley of Texas to the Doorsteps of your patrons in record time!

Luscious, vitamin-packed oranges are picked in the "ARISTOCRAT" groves one morning . . . your patrons serve the WHOLE* JUICE the next!

Investigate this new way to added profits TODAY!

Your plant is just a few hours by air from the "ARISTOCRAT" groves . . . as a typical example: from our groves to Chicago is just 6½ hours. "ARISTOCRAT" Whole Orange Juice is despatched daily by specially chartered planes to all sections of the nation.

For detailed U. S. Department of Agriculture Pure Food analysis, and particulars on your exclusive franchise opportunity . . . write, wire or 'phone:

MS *Max* STENZLER
EXCLUSIVE WHOLESALE DISTRIBUTOR
"ARISTOCRAT" CITRUS GROVE PRODUCTS.

MAIN OFFICES: 1421 SOUTH FLORES STREET
SAN ANTONIO, TEXAS · TELEPHONE C-0441
PACKING AND SHIPPING POINT
WESLACO, TEXAS....



# G&H PRODUCTS CORP.

**BOX 229 - KENOSHA, WISCONSIN**

NICKEL ALLOY...STAINLESS STEEL
SANITARY FITTINGS

★

***DAIRY EQUIPMENT SPECIALTIES***

# *Using Our Separator*

## Items of Interest Skimmed From Here and There

### *Microscope*

NEW EQUIPMENT which transforms an ordinary light microscope into an instrument that extends the range of human vision far beyond the limits of present microscopes has been announced by American Optical Company's Scientific Instrument Division.

Officials of the division, which is one of the manufacturing units of American Optical Company, Southbridge, Mass., said the new equipment, when added to a standard microscope, permits the observation and study of many living cells, tissues, microorganisms and industrial materials so transparent that heretofore little or no detail could be seen in them.

The new microscope equipment consists of newly developed light-controlling diffraction plates. Placed in an objective lens system, the plate makes detail visible within a specimen by increasing, reducing or reversing contrast in the image formed by the microscope.

One of the features of the new phase is that it makes possible an accurate study of transparent living organisms. Formerly, to make them visible it was usually necessary to stain them with dyes, a procedure that kills most organisms. As a result, most of the information gained in the past with the microscope was limited to the study of dead rather than living material.

### *New Products and Services*

TO KEEP the American business man posted on all innovations now being marketed by industry, a new 32-page tabloid entitled "New Products and Services" has just been published by the N. Y. Journal of Commerce. More than 500 new products—from war-born synthetic raw materials to the latest household gadget—are described in this study. Copies may be had at 50 cents each from the N. Y. Journal of Commerce, 63 Park Row, New York 15, N. Y.

Many of the products that have come to market in recent weeks seemed fantastic to even the post-war planners a few short years ago. Plastics head the list, The Journal of Commerce finds. They have come out of the gadget stage to replace metals in machine parts, adhesive in sporting equipment, to gain a place in textiles and household decorations, and to seek a large share of the hundred million dollar toy market.

Some of the innovations, like the new synthetic rubber made from corn sugar and other farm products, are only now being unveiled after a long period of wartime censorship. Cotton, wool and rayon are sprouting out in a variety of ways but are about to get added competition from twelve new synthetic yarns, made of everything from seaweed to soybeans and aluminum, The Journal of Commerce reports.

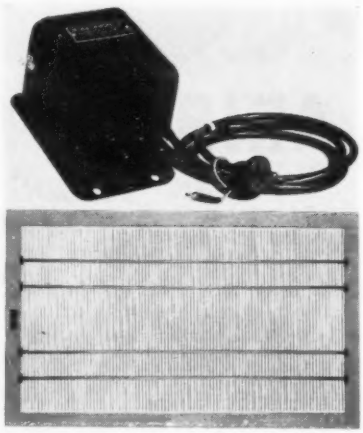
New uses or electronic equipment in industry, new hard surface wall coverings, more single-storied factory plants with lighter steel and more floor space, far-reaching expansion in frozen foods, and rust preventing cutting lubricants are among the many developments discussed in this "New Products" study. Other innovations decribed by The Journal of Commerce include golf balls made of molded nylon . . . draperies whose glow lights a room . . . dishes which may be hurled without breaking . . . evening gowns that can be wiped clean of stains with a moist cloth . . . and Christmas tree ornaments that glow brightly but require no wiring.

### *Electric Fly Screen*

FOR CONTROLLING FLIES the Detjen Corporation, New York City, announces electric fly screens that consist of two sets of sturdy bars, spaced three-eights of an inch apart, supported in a metal frame. The bars are energized by a new type transformer, operating at only 10 milliamperes. The electrical field set up between the two sets of bars presents an electrical barrier through which no fly or other flying insect can pass alive, inasmuch as the moisture in their bodies causes the electric current to complete a circuit from one bar to the other. The equipment is safe to human beings and animals, but deadly to flies and similar insects.

Some of the outstanding advantages of fly screens are: they operate automatically, without any attention; they operate continuously, thereby killing millions of flies; they kill the flies on the outside of the buildings, before entering; they keep the premises free from flies during working hours, when their presence inside is most objectionable.

Electric fly screens use about 10 cents worth of electric current per month. The screens are sturdily constructed of rust-resisting materials to withstand years of service under any weather conditions.



This electric fly screen will be introduced to the trade and the general public at the National Hardware Show, Grand Central Palace, New York City, September 16, 1946.

### *Electric Controls*

UNITED ELECTRIC CONTROLS CO., 69 A St., Boston 27, Mass., has just issued a new catalog that gives complete information and engineering details on all their thermostats and pressure switches.

### *Pre-Lubrication*

ACCORDING TO E. N. Fabrizio of the Westinghouse Electric Corporation motor lubrication problems have been greatly simplified with the introduction of the pre-lubricated bearing. In the factory, these bearings are sealed in a cartridge along with the proper amount of the correct type of lubricant. Inspection periods were first set at three years, have now been lengthened to five. What this means in savings in manpower is obvious.

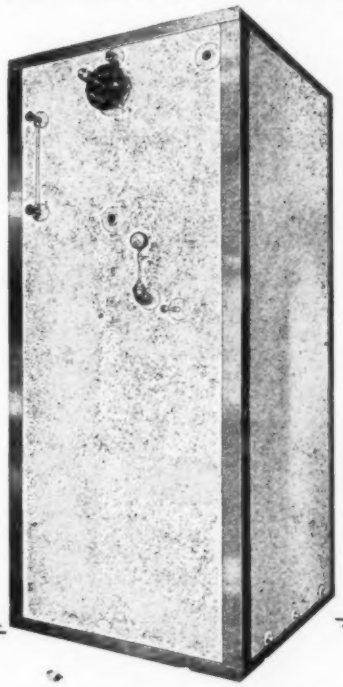
The chief advantages of the presealed bearing, aside from the sharp reduction in maintenance costs are: (1) the tightly sealed enclosure reduces oxidation of the grease, promoting longer grease life; (2) grease is kept in and dirt is kept out; (3) proper kind and amount of lubricant promotes longer bearing life; (4) when motors are disassembled the bearings are enclosed in a cartridge which protects them from dirt.

MORNING
AFTERNOON
EVENING

ICE WATER ON TAP ALL DAY LONG

With The

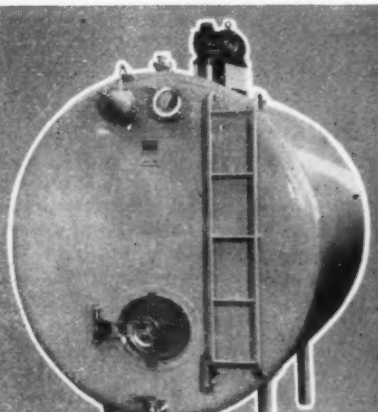
# "KING ZEERO" ICE BUILDER



Economical, convenient, efficient and trouble-free product protection at all times, regardless of your requirements or equipment — that's the original "King Zeero" Ice Builder. The comparatively small compressor that builds ice in the off-load period is low in initial cost and economical in current demand charges. A "King Zeero" Ice Builder is easy to install. It connects directly to your refrigerating system and needs only a secondary water connection to your cooler. "King Zeero" not only provides low cost, dependable refrigeration but adds new attractiveness to your plant with its gleaming sheet aluminum sides and painted trim. A 10,000 pound unit uses only 6 ft. x 6 ft. of floor space. Available in 1,600 to 10,000 pound ice capacity units and can be connected in series when increased production demands. For 32° - 34° ice water during ALL your cooling time, install the original "King Zeero" Ice Builder.

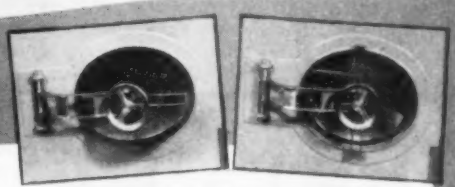
Write for Bulletin 74 for further details.

**THE KING ZEERO CO.** 1447-55 MONTROSE AVE., CHICAGO 13, ILL.



FAST-EASY-SAFE
MILK STORAGE or COOLING
now an established fact with
METAL-GLASS
Stainless Steel Tanks

MANY SPECIAL FEATURES
FOR IMPROVED EFFICIENCY



Manhole door and cover of Stainless Steel — simple to operate.

**2 STYLES AVAILABLE — *Regular Model for Storage Purposes or Frigidwall Unit for Cooling and Storage —***

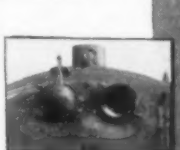
Regular model tank is ideal for storage — fully insulated, sealed against moisture — protects fully against temperature changes. Frigidwall unit is dual purpose — eliminates need for special cooling equipment and also serves as a storage tank. Means less milk handling, faster cooling and resultant savings in time and labor.

***Completely Sanitary — Easy to Clean***

Tanks are of 18-8 Stainless Steel construction and have Stainless Steel lining which is smooth and polished. Stainless Steel is, of course, acid and rust proof and all that it requires to keep tank clean and sanitary is washing out after use. Tanks are all welded construction throughout — built to give years of efficient service.

*Write for literature and prices.*

Geared head motor for sanitary agitation.



Sight glass fittings and light easily accessible.

**METAL-GLASS PRODUCTS CO., Dept. DB BELDING, MICH.**

Wherever bearings turn, some need for maintenance is recognized. After motors with presealed bearings have been in operation for five years, it is recommended that a spot check be made. If the lubricant is discolored and has an offensive odor, it should be replaced. If not, the shield of the presealed bearing may be replaced and the bearing put back in service.

### *Wall Paneling*

COLORFUL EMPHASIS on the beauty and utility of Marlite wall paneling for commercial building and remodeling is found in the 1946 Marlite catalog issued today by Marsh Wall Products, Inc., Dover, Ohio. The 12-page catalog includes color and black

and white photographs of many Marlite installations.

Marlite plastic finished wall paneling is used extensively by builders and architects. Its lustrous surface reflects beauty, yet resists acids and alkalis, insuring a stainproof, easy to keep clean wall.

All available colors and patterns are made in panels four feet wide and from four to twelve feet long. These large will size panels make modernizing easy and economical, for the average wall can be covered from corner to corner with a single panel. Panels are easily cut to desired size with ordinary carpenter tools. Fitting and installation are quickly accomplished by any good carpenter.

Detailed information is given on all Marsh mouldings and accessories. Mouldings are available in white alloy, plastic, presdwood, wood, and stainless steel. The catalog also gives general specifications and complete instructions for installation.

Copies of the new Marlite catalog may be had on request from Marsh Wall Products, Inc., Dover, Ohio.

### *Telephonic Device*

NUMEROUS DAIRY CONCERNS have been outfitted recently with a new telephone device that eliminates use of the hands for holding the instrument, according to a press release by the manufacturer.

The attachment enables the user to rest the telephone on his shoulder, freeing both hands for checking schedules, filling out forms, making notes, typing, or other duties in connection with the conservation.

Increased accuracy and neatness in recording messages has been demonstrated in efficiency tests employing the device, its sponsors say. Adaptable for use on cradle-type or older model telephones, it consists of a molded piece of plastic which can be attached permanently to the instrument. Manufacturers are the Rayem Plastics Products Corp., Chicago, Ill.

### *Rubber Booklet*

A NEW 28-PAGE pocket-size booklet on its complete line of industrial rubber products has just been issued by The B. F. Goodrich Company, Akron, Ohio and is available upon request.

The booklet lists the company's lines of flat transmission belting, conveyor belting, fractional horsepower V-belts and sheaves, multi-V belts and sheaves, all types of hose and hose couplings, adhesives, Plastikon rubber putty, packing, rubber linings for a variety of purposes, hard and sponge rubber, industrial clothing, rubber gloves, and other products.

### *Transtacker*

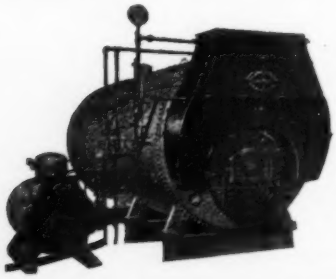
MAKING SYSTEMATIC material handling practical for food production and storage plants, the new Transtacker, announced by Automatic Transportation Company, Chicago, is said to do the work of standard fork lift and high-lift platform trucks where

weight, size or cost make the larger units impractical.

One man with the Transtacker, illustrated herewith, hauls and tiers heavy skid loads of sugar with touch-of-the-thumb control. The platform model illadding substantially to usable storage lustrated will handle up to 4,000 pounds. Platform raises to a height of 68 inches, space.

Records of a Chicago factory, where a test model Transtacker was used for


LEFFEL SCOTCH MARINE BOILER



Universally accepted and used as the Ideal Boiler for MILK PLANTS where Economical Service, High Efficiencies and Lowest Maintenance Costs are required.

Built in sizes 6 to 250 H.P., to comply with the A.S.M.E. Boiler Code and all State Boiler Laws.

Splendidly adapted for firing with COAL (hand fire, or with the specially designed LEFFEL STOKER) OIL, GAS and WOOD.

THE JAMES LEFFEL & CO., Established 1862 Springfield, Ohio

See Additional Leffel Stoker Ad on Page 72 Dept. MR

# More INSECT-KILLING POWER Than Ever Before!

Improved Deodorized FLY-TOX contains pyrenone, a combination of purified pyrethrum extract and piperonyl cyclohexenone (the newly developed toxic ingredient). MORE POTENT THAN EVER... SAFER TO USE.

Rid your plant of Roaches, Flies and most other insects with this safe-to-use, economical spray Comes in 1-gal., 5-gal., 30-gal. and 55-gal. containers. Harmless to humans or animals. Safe to use near uncovered foods. Therefore, ideal for ridding Dairy Products Plants of disease-laden insects. Non-contaminating . . . leaves no odor.

WRITE TODAY
Get prices and full information.
Prompt shipments guaranteed.
Rex Research Corp., Toledo 7, O.

**REX SURFACE INSECTICIDE—DDT**
(Contains 5% DDT and other active ingredients)
New residual insecticide. Flies, mosquitoes, bed bugs and certain other insects die 1 to 3 hours after contact with treated surface. Effective for months. Spray or paint on walls and ceilings...in cracks and crevices.

**REX RESEARCH CORPORATION**
**TOLEDO 7, OHIO**

# WITH CLEVE-O-CEMENT

**No waiting, no time out when worn, rutted floors are fixed** with Cleve-O-Cement. It sets quickly, dries rock-hard overnight. Stands heavy traffic in a few hours. Quickly and easily applied. No special tools. Comes ready to mix. Repairs wet or dry floors and resists dampness, heat, cold, steam, lactic acids. Not an asphalt emulsion. 28 times harder than ordinary cement. Used in hundreds of refrigerator, cooling, processing, and pasteurizing rooms.

*Send for illustrated bulletin and complete information.*

**THE MIDLAND PAINT & VARNISH CO.**
**9100 Reno Avenue** **Cleveland 5, Ohio**

**FULLY-SWEETENED ORANGE at PRE-WAR PRICES**

*Each Gallon Day-Ray makes 8 Gallons Finished Product*

# HARRISON'S
*Day-Ray Fresh Fruit*
# ORANGE
Reg. U. S. Pat. Off.

## Fully Sweetened-Add Nothing but Water

A 7 to 1 FRESH FRUIT ORANGE PRODUCT — $2.00 per gallon. **F. O. B. Chicago**

**Makes an Orange drink to be proud of. Net cost 25c per gallon, Finished Drink.**

**We ship in barrels holding 30 or 50 gallons.**

You can double your Orange business this summer with our Day-Ray Orange. Better wire today.

***Pin $2.00 check to your letter head for sample gallon***

**HARRISON'S ORANGE CORPORATION**
**6200 So. Kedzie Ave.** **Chicago 29, Ill.**

many months, show that even in this plant—where handling methods were partially mechanized before—the Transtacker has further cut handling costs and time both by 50 per cent and added one-third to usable storage space.

### *Truck Cleaner*

TURCO PRODUCTS, INC., in Los Angles has introduced a new method of cleaning delivery trucks through an air-driven, spray application of its "Turco Car Shampoo."

Applying this fast-action cleaner with the new dispensing unit, one operator can clean a 21-foot truck in 22½ minutes, states the company.

The new cleaning method is said to protect the truck body against corrosive products, oxidation and destructive soils.

The complete story of this new cleaning method is told in a 4-page folder, "An Immaculate Fleet Can Help Sell Goods." Free copies are available for immediate distribution.

### *Cabinet Lids*

A FOUR PAGE leaflet on its recently announced new all-rubber cold cabinet lid has just been published by The B. F. Goodrich Company, Akron, Ohio and is now available upon request.

The leaflet, profusely pictured, outlines some of the tests made before the new lid was announced and describes its pertinent construction features, including the "hidden" fabric reinforced rubber hinge that requires no lubrication and won't corrode.

## AMERICAN CAN EXPANSION

### Will Spend 4½ Million Dollars to Increase Container Production 50%

Work has started on a $4,500,000 expansion program, including new plant facilities at Maywood, Ill., and additions to equipment at four existing plants, intended to increase by 50 per cent American Can Company's capacity for production of quart fibre milk containers, according to an announcement by W. C. Stolk, vice president.

Four plants now in operation at Brooklyn, Jersey City, San Francisco and Los Angeles made more than a billion fibre milk containers in 1945, Mr. Stolk said.

New machinery is now being built, he explained, in the company's shops with installations planned to start at Brooklyn and Jersey City within the next 90 days. These plants, which supply the New York metropolitan area besides shipping containers to Chicago and the Middle West, will have a 15 per cent increase in quart container capacity by early 1947.

First additions to West Coast facilities will be made with installation of a new line at San Francisco so that additions can be made to existing lines with no loss of weekly output. The program at San Francisco and Los Angeles will ultimately raise quart container output 50 per cent at these plants, it was declared.

## New York Agreement

### Prices for Milk to Producers During August to Be Maintained the Same as During July

In order to compensate milk producers supplying the New York Metropolitan marketing area for their loss of Federal subsidies which ended with the lapse of OPA, the dealers and producers who supply milk in the Metropolitan area agreed July 22, that producers be paid the same increased price for August as was paid in July. Continuance of the increased price to producers in August will involve no further increase in the consumer price according to Edward O. Mather, spokesman for the New York metropolitan distributors.

Commenting upon this action, Mr. Mather said, "The agreement with the exception of slight changes in prices of milk used for sour cream and ice cream, retains the same prices to producers that were agreed to be paid for July milk. There will be no change in the retail price of fluid milk to consumers in New York City."

In the agreement reservation of the right to seek higher prices to offset higher production costs was maintained, according to Charles H. Baldwin, spokesman for the bargaining cooperative.

While the agreement is not yet final it will become effective August 1, if ratified by 97 per cent of the operators of country plants approved for shipping milk into the New York metropolitan market. Ratification by 423 such plants would have the same effect, whichever figure is lower.

It was also agreed by the negotiating committee that the proposed pact would extend from August 1 until negotiations were reopened by either producers or dealers. In such event the agreement would terminate on the first of the following month.

The agreement provides that dealers will pay producers $5.02 per 100 pounds for Class 1A fluid milk; $3.95 for Class 2A fluid cream, and 25 cents a hundred over the so-called Boston cream price for Class 2B, ice cream. The Class 1A and Class 2A prices are the same as those negotiated on July 6 for milk delivered in July.

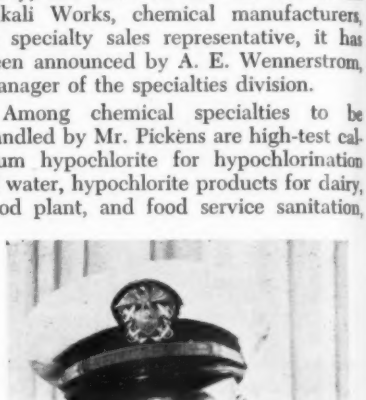
It was estimated that the premium of 92 cents a 100 pounds in Class 1A and 95 cents in Class 2A and the Class 2B price, based on the Boston cream price, would blend at approximately 75 cents a 100 pounds for all milk, which was about the amount lost to producers by the lapsing of the OPA.

## MATHIESON APPOINTMENTS

### Chemical Firm Creates New Sales Posts and Rearranges Territories

Former Lt. Commander J. L. ("Pick") Pickens, recently discharged from the Navy, has returned to The Mathieson Alkali Works, chemical manufacturers, as specialty sales representative, it has been announced by A. E. Wennerstrom, manager of the specialties division.

Among chemical specialties to be handled by Mr. Pickens are high-test calcium hypochlorite for hypochlorination of water, hypochlorite products for dairy, food plant, and food service sanitation,



Lt. Comdr. J. L. Pickens

detergents for plants and for use in milk can washing machines, and other sanitizing agents.

Mr. Pickens will make his headquarters in Houston, Texas, and will operate in the Southwest.

Harold R. Dinges has been named district sales manager of one of the new southern sales areas and will direct its activities from headquarters at Charlotte, N. C. He will supervise company sales activities in Virginia, North and South Carolina and parts of West Virginia and Tennessee.

O. J. Theobald, Jr., a member of the Mathieson organization since 1932 as sales representative, has been named to assist Mr. Dinges.

Fred O. Tilson, district sales manager of the second newly defined southern area which will be serviced from Chattanooga, Tenn., will supervise company sales activities in parts of Tennessee, Alabama and Georgia.

William H. Eastburn heads the newly defined New England sales area as district sales manager.

## Food Distributor Obligations

*(Continued from Page 42)*

types of transactions: ordering, purchasing, receiving and unloading of goods from another state. This would include employees who order the goods, carry on the correspondence, keep the books, check the invoices, make payment for the goods, and those who haul them in from wharves and freight deposit, unload the freight cars and trucks, or place the goods in the warehouses. Under normal circumstances this would cover most of the wholesaler's employees such as office help, most warehouse employees, the receiving clerks and any special unloading crews and some of the truck drivers.

The Supreme Court went further, however, and held that in certain types of transactions goods remain within the channels of commerce until they reach the customer. In other words, if such goods are received from another State, all employees engaged in handling or distributing them will be covered by the Act. These special types of transactions, with respect to which there is a "practical continuity of movement" of the goods from outside the State to the intended destination, are:

(1) *Prior Orders.* Frequently a wholesaler receives orders for stock items the supply of which is exhausted. He reorders the merchandise and delivers it to the customer as soon as possible; or, if a fresh supply has already been ordered, he will make delivery to the customer promptly when the new supply arrives.

(2) *Special Orders.* These may include many different types of goods which have a specific destination, that is, they are purchased for a specific customer. Generally, the term covers orders for items or lines of goods which the wholesaler does not carry in stock or which he stocks only at the place of manufacture. It also includes, of course, manufactured items with the customer's name or brand.

(3) *Goods ordered to fill pre-existing contracts or understandings.* While this group might be classed under prior orders, it frequently happens that wholesalers carry and order goods to meet the contract requirements of particular customers calling for periodic deliveries.

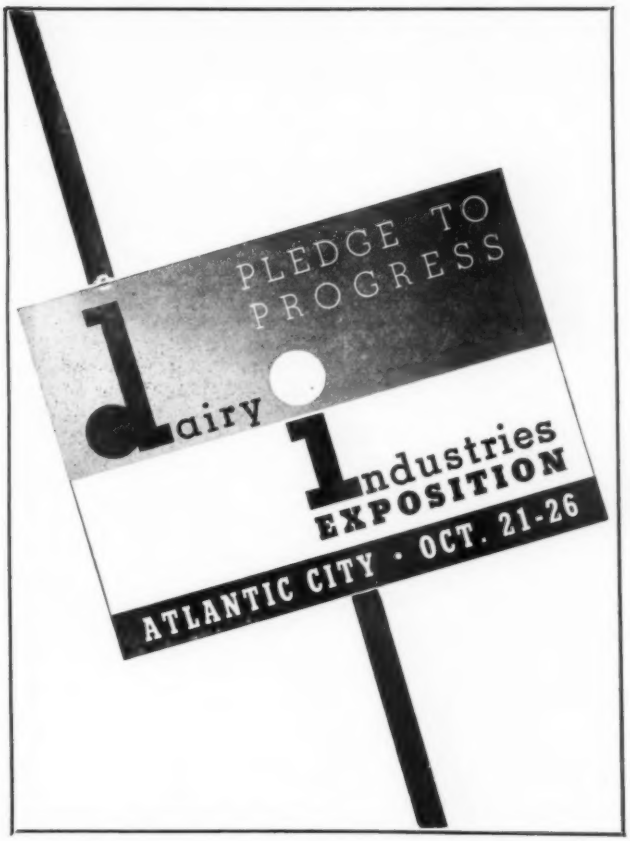
(4) *In addition,* the Supreme Court stated that "a wholesaler's course of business based on anticipation of needs of specific customers, rather than on prior orders or contracts, might * * * at times be sufficient to establish that practical continuity in transit necessary to keep a movement of goods 'in commerce' " until they reach the customer.

Drop shipments also are included but do not represent any particular question since ordinarily they are shipped direct from the manufacturer to the wholesaler's customer.

In holding that all of these types of goods are in commerce until they reach the customer for whom they are intended, the Supreme Court ruled that a break or pause in the physical continuity of transit (such as placing the goods in a wholesaler's warehouse) may interrupt but does not end their interstate journey.

Nor is it necessary for all of a wholesalers' business to have an inter-state character to establish coverage. In this connection, the Supreme Court recently held that no distinction as to coverage on the basis of volume of business was made by the Congress in adopting the Fair Labor Standards Act. The Court stated:

"Though we assume that sporadic or occasional shipments of insubstantial amounts of goods were not intended to be included in that prohibition, there is no warrant for assuming that regular shipments in commerce are to be included or excluded dependent on their size."

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Booth 203

AMERICAN MILK REVIEW

These features of the Supreme Court's decisions made it obvious that even wholesalers who distribute entirely within their own State will find many of their employees are entitled to the benefits of this basic wage and hour law.

**Exemptions Described**

The Division's Interpretative Bulletin No. 6 discusses the scope of the exemption, granted in Section 13 (a) (2) of the Act, for employees of a "retail or service establishment, the greater part of whose selling or servicing is in intrastate commerce."

Now, let us see briefly how the Divisions define a retail establishment for the purposes of Section 13 (a) (2).

A retail establishment is characterized by numerous small sales to private individuals for personal or family consumption. It sells merchandise in small quantities, usually at prices which are higher than the prices involved in sales by wholesalers or jobbers. A retail sale is a sale of goods for direct consumption and not for purposes of resale or redistribution in any form. Sales to wholesalers, jobbers or retailers for resale by them are not retail sales, regardless of the price or quantity involved. Similarly, the distribution of goods from a chain-store warehouse to retail stores of the chain is not retail distribution, and the warehouse is not a retail establishment.

Because the vast majority of retail stores are quite typical, even this thumbnail sketch will serve to identify most of them. And by the same token, few wholesalers, jobbers and other establishments engaged in non-retail distribution will have any difficulty in so classifying themselves for the purposes of Section 13 (a) (2) — in other words, these concerns will not be exempt as retail establishments.

For purposes of enforcement, the Divisions consider each physically separate place of business as a separate establishment. Thus the term is not synonomous with the words "business" or "enterprise" as applied to multi-unit companies. A decision of the Third Circuit Court of Appeals at Philadelphia illustrates this point well. The American Stores Companies contended that its entire operation, including warehouses, executive offices, canneries, bakeries, food manufacturing plants and over 2,300 retail stores in five states and the District of Columbia, constitutes a single exempt retail establishment.

While agreeing that employees in the company's retail stores were exempt under Section 13 (a) (2), the Divisions maintained that this exemption does not include employees in chain store warehouses or central executive offices, or employees engaged in the production of goods. The court supported the Divisions in this position.

This case also involved the status of employees in four of the chain store company's warehouses which distribute only to the company's retail units in the same states. In ruling that these employees were covered by the Wage and Hour Law, the Circuit Court found that there exists "a practical continuity of movement of goods until they reach the defendant's stores." That was the first time a lower court had occasion to apply the standards set by the Supreme Court in the Jacksonville Paper Case.

**New Position Announced**

Recent decisions of the Supreme Court and the appellate Federal courts have greatly clarified the scope and meaning of the term "retail establishment" as used in Section 13 (a) (2) of the Act. In view of these decisions, the retail establishment exemption is now regarded by the Divisions as inapplicable to chain store warehouses irrespective of whether the goods stored therein are to be delivered to the customers of the retail stores directly from the warehouse, pursuant to sales made at the stores. Consequently, where the employees in such warehouses are within the general coverage of the Act, it will be necessary that they be paid in accordance with the Act's minimum wage and overtime requirements.

The announcement of this position is contained in the Divisions' release A-18, dated June 3, 1946, which points out that although the Divisions have consistently viewed the retail establishment exemption as inapplicable to chain store warehouses supplying several retail stores with merchandise for sale and delivery by the stores, they have heretofore not taken any position with regard to the applicability of this exemption, or sought to enforce the Act's wage and hour provisions, in the case of such warehouses where all of their shipments were made directly to private consumers, with the exception of goods sent to the stores of the chain to serve as samples. Where, however, a warehouse distributed any substantial amount (even as little as 10 per cent of its total distribution) to retail stores for sale and delivery by the stores, the 13 (a) (2) exemption was considered inapplicable.

Under the position announced in release A-18, the exemption will now be considered inapplicable irrespective of the percentage of goods delivered to the stores and even though all the goods are delivered directly to the customers.

The interpretation announced in release A-18, insofar as it represents a change in the Divisions' former policy, will be adopted for enforcement purposes July 1, 1946. The time lag between announcement of the altered position and July 1 was permitted to afford the industries affected an opportunity to appraise the effect of the changes and to plan any modification of their operating methods which they deemed appropriate without the risk of governmental action based upon failure to comply with the Divisions' interpretation as


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| | |
|---|---|
| MILK | BUTTERMILK |
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revised. This administrative policy does not, of course, affect the independent right of employees, under Section 16 (b) of the Act, to maintain their own suits to recover whatever compensation may be due them under the Act.

Concluding, it is well to remind employers who are subject to any provision of the Fair Labor Standards Act that they must keep certain time and payroll records showing hours, rates of pay, overtime compensation, and the like. No special forms or aaccounting methods are necessary, but the required information must be complete, accurate, and readily available.

Though the Divisions seldom have pursued a punitive policy in their enforcement procedure, the law itself has strict penalty provisions. These include for wilful violations, a fine up to $10,000, and for a second conviction, imprisonment up to six months, a fine or both.

For replies to specific qestions on coverage, employers are advised to contact the Divisions through their Regional offices in the various States.

### Location of Regional Offices of the Wage and Hour Division

**BOSTON 8, MASSACHUSETTS**—Old South Building, 294 Washington Street.
**NEW YORK 1, NEW YORK** — Parcel Post Building, 341 Ninth Avenue.
**PHILADELPHIA 7, PENNSYLVANIA**—1216 Widener Building, Chestnut and Juniper Streets.
**RICHMOND 19, VIRGINIA**—215 Richmond Trust Building, 627 East Main Street.
**ATLANTA 3, GEORGIA**—Fifth Floor, Carl Witt Building, 249 Peachtree Street, N. E.
**BIRMINGHAM 3, ALABAMA**—1007 Comer Building, 2026 Second Avenue, North.
**NASHVILLE 3, TENNESSEE**—500 Medical Arts Building, 119 Seventh Avenue, North.
**CLEVELAND 13, OHIO**—4237 Main Post Office, West Third and Prospect Avenue.
**CHICAGO 54, ILLINOIS**—1200 Merchandise Mart, 222 West North Bank Drive.
**MINNEAPOLIS 3, MINNESOTA** — 406 Pence Building, 730 Hennepin Avenue.
**KANSAS CITY 6, MISSOURI** — Fidelity Building, 911 Walnut Street.
**DALLAS 2, TEXAS** — Rio Grande National Building, 1100 Main Street.
**SAN FRANCISCO 3, CALIFORNIA**—501 Humboldt Bank Building, 785 Market Street.

## New Continental Can Co. Plant

Continental Can Company's Paper Division will begin construction of a new paper container plant in Utica, New York, within the next two weeks, according to Carle C. Conway, chairman of the board and president. Located at Seward Avenue and French Road, the building is expected to be com-

As explained by J. F. Price, general manager of the Paper Division, the new factory is needed to meet the company's pleted by the early summer of 1947.

**Continental Can Company's Proposed New Paper Division Plant in Utica, New York**

expanding paper conversion activities, and will be devoted exclusively to the manufacture of sanitary food containers.

Located on a 13½-acre site, which will provide room for contemplated future expansion, the building, with its 228,000 square feet of floor space, is planned to meet the manufacturing requirements of specially designed equipment now being built and which will be ready for installation upon completion of the factory.

E. J. Engel, manager of the present Utica conversion plant at 2150 Erie Street, will be in charge of the new plant.

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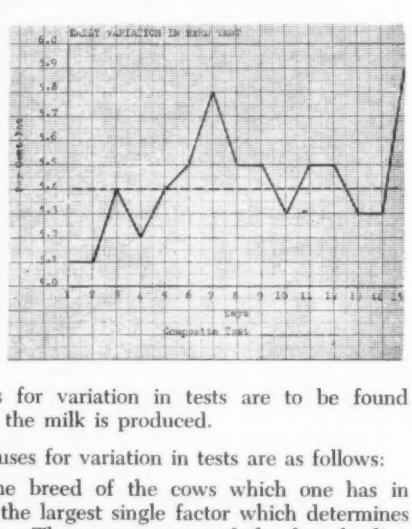
# Fat Variation In Milk Tests

## Causes Usually to be Found on the Farms — Knowledge of Factors Will Lift Doubts in Minds of Many Milk and Cream Producers

**(By T. H. Binney, Purdue University, Agricultural Experiment Station, Lafayette, Indiana.**

THE QUESTION which is uppermost in the mind of a dairyman who is delivering a can of milk to one of the various buying agencies is whether or not he is receiving the correct test for his product. Dairymen frequently doubt the accuracy of butterfat tests when they vary from one delivery to another because they are unfamiliar with factors which cause variations in tests. Records of the Creamery License Division show that less than one-half of one per cent of all the licensed testers in the State have their licenses revoked for doing incorrect testing. It is evident, then, that

| May | #Milk | Test % |
|---|---|---|
| 1 | 112.5 | 5.1 |
| 2 | 118.5 | 5.1 |
| 3 | 109.0 | 5.4 |
| 4 | 115.0 | 5.2 |
| 5 | 108.0 | 5.4 |
| 6 | 97.5 | 5.5 |
| 7 | 95.5 | 5.8 |
| 8 | 102.5 | 5.5 |
| 9 | 95.0 | 5.5 |
| 10 | 91.0 | 5.3 |
| 11 | 82.5 | 5.5 |
| 12 | 94.0 | 5.5 |
| 13 | 100.0 | 5.3 |
| 14 | 88.5 | 5.3 |
| 15 | 119.0 | 5.9 |
| Lbs. of Milk..... | | 1528.5 |
| Lbs. of Fat..... | | 82.78 |
| Average Test ..... | | 5.41 |




some of the causes for variation in tests are to be found on the farms where the milk is produced.

Some of the causes for variation in tests are as follows:

1. *Breed.* The breed of the cows which one has in his herd is perhaps the largest single factor which determines the test of the milk. The average tests of the four leading breeds are: Jersey 5.4 per cent, Guernsey 5.0 per cent, Ayrshire 4.0 per cent, and Holstein 3.4 per cent.

2. *Individuality.* As the genetic make-up of animals within each breed is similar, it might be expected that the variation in the percentage of fat of individual animals within the breed would be small and that the milk produced by each breed would have a characteristic fat content. However, if one should select any particular breed he would find a wide variation in the milk test of the individuals.

For instance, in a herd of 100 Jerseys, we might find the tests of individuals to vary from 4.0 per cent to 7.0 per cent butterfat, but the average test of the 100 cows would be very close to the average for the breed.

3. *Feed.* Experiments conducted to find a feed which will permanently increase the fat content of milk have failed in practically all instances. Usually changes in the kind or quality of feed will produce a change in the composition of milk only until the cows become accustomed to the changed conditions. When cows are turned out on pasture in the spring, the fat test of milk usually decreases and the volume of milk increases.

4. *Season.* We generally find that milk tests are highest during the coldest part of the year and lowest during the hottest part of the year. This seasonal variation has been considered by some as being due to variation in feed and other similar conditions. The low test of summer was believed to be due to pasture feeding and the increase toward fall to the addition of grain to the ration. However, experiments have shown that the same changes occur when cows are fed exactly the same ration during the entire year.

5. *Weather.* During any particular season, and decided change in the weather, such as rain storms, exceptionally cold or exceptionally hot weather, will generally cause a decrease in the test. The length of time the disturbance lasts often determines how long the test will be below normal.

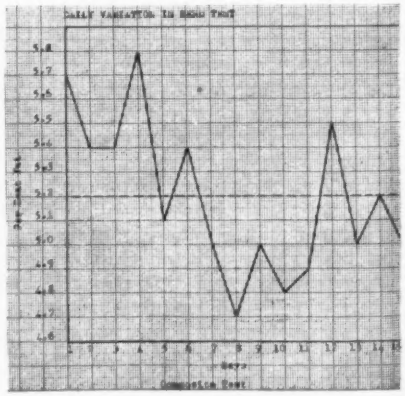
6. *Lactation.* While all of the investigators of this particular factor do not agree as to how long after calving the fat test declines, it is generally agreed that there is a decline in the test. No definite rule can be set for any particular breed because of the difference in the individual animal. The test may stay down for from one to three months and then gradually increase until the highest test is reached just before calving time. The test is lowest at the time the cow is giving the largest amount of milk.

7. *Age.* The average yearly test of milk is inherited by the cow, and is subject only to minor variations. There is a tendency for the percentage of fat to decline slightly with age. The total decline is very slight and of very little importance.

8. *Time Intervals.* The percentage of fat in normal milk varies a great deal from day to day. Sometimes the cause for such variations is known, but more often the change can not be accounted for. Experiments have shown that a herd test may vary in excess of 1% butterfat from one day to the next. The accompanying graphs show the changes in a herd test over a fifteen day composite period.

There is also a variation in the test of milk produced in the morning as compared with that produced at night. Milk

| May | #Milk | Test % |
|---|---|---|
| 1 | 79.5 | 5.7 |
| 2 | 89.5 | 5.4 |
| 3 | 127.5 | 5.4 |
| 4 | 116.5 | 5.8 |
| 5 | 130.5 | 5.1 |
| 6 | 118.5 | 5.4 |
| 7 | 128.5 | 5.0 |
| 8 | 124.5 | 4.7 |
| 9 | 116.0 | 5.0 |
| 10 | 119.0 | 4.8 |
| 11 | 105.0 | 4.9 |
| 12 | 111.0 | 5.5 |
| 13 | 111.5 | 5.0 |
| 14 | 121.0 | 5.2 |
| 15 | 117.0 | 5.0 |
| Lbs. of Milk..... | | 1715.5 |
| Lbs. of Fat..... | | 88.86 |
| Average Test..... | | 5.18 |



tests highest after the shortest interval between milkings. Under ordinary farm practice milk will test higher in the morning than it does in the evening.

9. *Completeness of Milking.* The first milk drawn from the udder may test as low as 1% butterfat while the last milk or "strippings" may test from 7 to 10% butterfat. It would not take much of the "strippings" to be left in the udder to considerably change the butterfat average.

10. *Health.* Cows should be in good health for maximum production. Both the amount of milk and the test is affected when a cow is in poor health and has udder trouble such as garget or mastitis.

11. *Exercise.* Experiments have shown that moderate exercise will increase the test.

12. *Management.* A careless milker, or rough treatment of a cow just before or during the milking may cause a decrease in the quantity of milk and a lower test. A change in milkers may either raise or lower a test, depending on the individual doing the milking.

13. *Environment.* For the maximum production, healthy cows should be housed in well-lighted and well-ventilated barns. An ample supply of drinking water should be provided. When out on pasture, shelter should be provided against excessive heat or sudden storms, and the cows should not be subjected to undue excitement or annoyances.

14. *Skimming.* The practice on some farms of skimming cream from the milk table use lowers the test considerably.

15. *Transportation.* Warm milk or milk in partially-filled cans will churn en route to the plant when transported over very great distances. This makes accurate sampling impossible.

### Sampling Milk

The first essential in securing a reliable butterfat test of milk is an accurate sample, one which contains the same proportion of fat as the whole amount from which it is taken. Unless the sample is taken correctly the result of the test will not be correct, no matter how skillfully the testing is done.

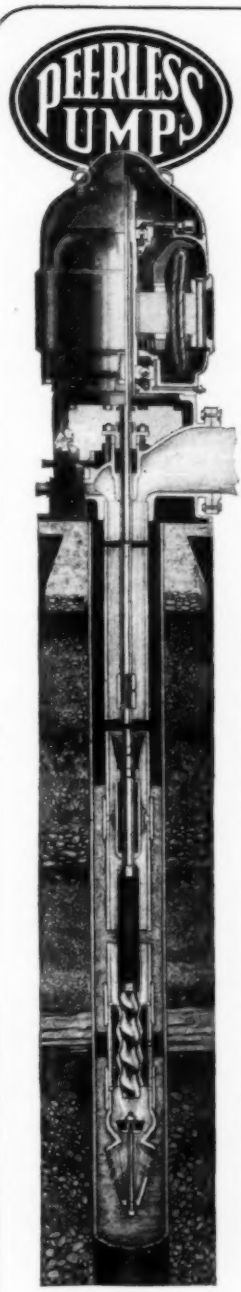
*Plant Sampling.* Numerous ways are employed by the plant in securing a sample which is to be tested and used as a basis of payment for milk delivered by a patron. However, only one of two methods should be used for accurate results. Either a fresh daily sample should be taken and tested, and the daily butterfat delivery computed, or a composite sample consisting of aliquot portions of each delivery should be taken.

*Farm Sampling.* Very often a patron is not satisfied with the test made by the plant. Taking a sample of milk from one day's delivery is not a fair check against the plant's composite sample. The only reliable check is to sample the milk each day over the same period by the plant's composite sample and test the sample at the end of the period. In securing the sample, the cans of both night and morning milk should be thoroughly stirred with a stirring rod which reaches to the bottom of the cans, and aliquot portions should be taken from each can.

### Accuracy of Composite Samples

A composite sample, accurately taken, properly preserved, and accurately tested will check within 0.01 to 0.03 per cent with the average daily test of fresh milk. The preservative added to the sample inhibits the growth of bacteria that causes milk to sour and does not lower the butterfat test.

Further particulars in regard to obtaining additional copies of this educational bulletin may be obtained by writing to Prof. T. H. Binney, Agricultural Experiment Station, Purdue University, Lafayette, Indiana. Reprints of this article may be obtained also by writing to this publication promptly.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Patents: Manufactured under R. Moineau patents U. S. 1892217 and 2028407: Canadian Patents 352574. By exclusive license to Robbins & Meyers, Inc. Peerless U. S. Patents Nos. 2208975, 2338937 and 2346426. Other patents pending.

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# The Dual Use of the Vacreator

## Application for Condensing Milk and Pasteurizing Ice Cream Mix Described in Oregon State College Agricultural Experiment Station Bulletin

**(By G. H. Wilster, Professor of Dairy Manufacturing, Oregon State College)**

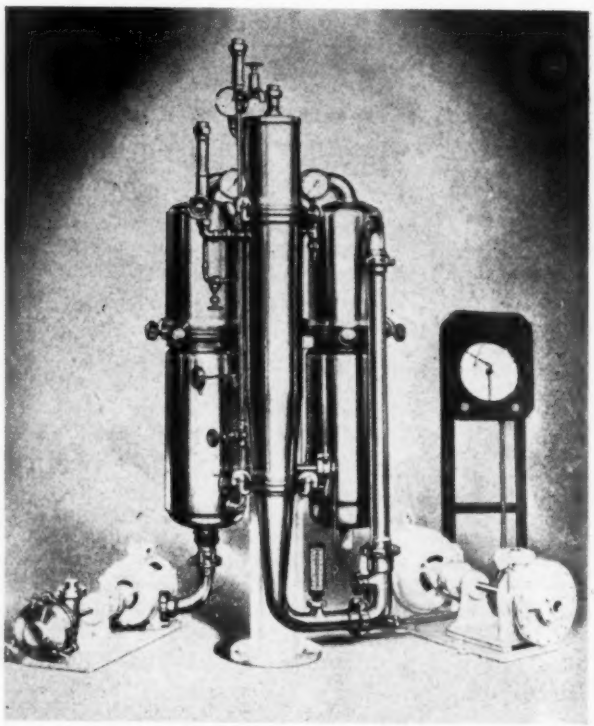
**Following a long series of experiments and research extending over a period of several years on the use of the Vacreator for condensing milk and pasteurizing ice cream mix, the Agricultural Experiment Station, Oregon State College at Corvallis, has issued Station Bulletin 430, describing in detail the work and finds resulting from this study. The bulletin was prepared by Professor G. H. Wilster, Oregon State College.**

**The "Review" is pleased to present herewith a reprint of the introduction, summary and conclusions contained in this bulletin. Complete copies of Bulletin 430, may be obtained by writing to Wm. A. Shoenfeld, Dean and Director of the Oregon Agricultural Experiment Station.**

THE FIRST VACREATOR on the American continent was received from New Zealand and installed in the dairy products laboratory at the Oregon Agricultural Experiment Station in September 1938. A report covering a study of 86 churnings of butter made from cream pasteurized by the usual vat method and 86 churnings made from cream pasteurized by the new method was published.† It was found that "Vacreation resulted in increasing the average score of the butter when fresh 0.83 point," and "The vacreation method of pasteurization was found to be more efficient in killing bacteria than the coil vat method at the temperatures used." Vacreators were also installed by the dairy departments of the University of Manitoba and Iowa State College. Experimental churnings were made. Results obtained in Manitoba showed that "Of the 153 direct comparisons made in this study between butter made from pasteurized and vacreated cream, all but eight or 145 are in favor of the vacreated on the basis of flavor scores," and "The Vacreator is an efficient pasteurizer."* The Iowa results showed that "The vacuum pasteurization of good quality cream gave butter of significantly higher score than vat pasteurization of portions of the same cream." There was an average difference of 0.97 point in score in favor of the butter made from vacuum pasteurized cream. It was also found that "no deleterious heated or cooked flavors are introduced as a result of the high temperature of pasteurization."

The outstanding results obtained at Corvallis with the new method of pasteurizing cream for butter led to a consideration of using the method for ice cream mix. It had been reported that ice cream mix was being successfully pasteurized in Australia at as high as 205 deg. F. by this method.

As ice cream mix had generally been pasteurized at from



The Vacreator used at Corvallis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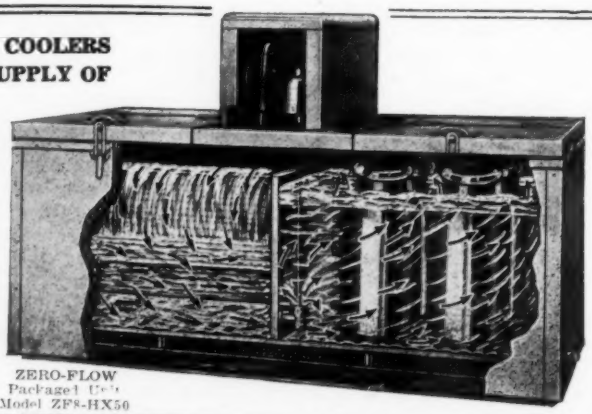

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155 deg. to 160 deg. F. for 30 minutes prior to homogenization, it was with some skepticism that this method of high-temperature, vacuum pasteurization of ice cream mix was tried by the Oregon Agricultural Experiment Station. It was feared that the heat treatment, even at 190 deg. to 200 deg. F., might cause a caramel or butterscotch flavor in the mix, and that the whipping property of the mix would be injured. It was also suspected that the ice cream would have a weak body and probably a poor melt-down characteristic. As the mix would emerge from the vacuum pasteurizer at a temperature of about 110 deg. F., it would be necessary to heat the mix again if homogenization were to follow pasteurization.

**Summary**

1. The quality of the ice cream made when the mix was
   (a) homogenized,
   (b) vacuum pasteurized with a Vacreator at 198 deg. F.,
   (c) immediately cooled

   was superior to that of ice cream made when mix was
   (a) pasteurized by the vat-holding method (160 deg. F. for 30 minutes),
   (b) homogenized,
   (c) cooled.

   The new method of high temperature vacuum pasteurization of ice cream mix has been standard procedure in the dairy products laboratory, Oregon Agricultural Experiment Station, during the past five years.
2. Amember of the experiment station staff in 1939 had considered the possibility of condensing milk for ice cream mix with the Vacreator.
3. War period scarcity of dry milk late in 1942 prompted a study of condensing milk and ice cream mix with the station-owned "Baby" size Vacreator (vacuum pasteurizer).
4. After about one year of experimentation a simple, practical, and inexpensive method of condensing skim milk to the concentration desired for ice cream mix, using the Vacreator without any mechanical change as a milk condenser, was devised. Condensed milk of a highly satisfactory quality was obtained.
5. Condensing the complete mix, using cream and either whole milk or skim milk as sources of fat and milk solids-not-fat, was found to be possible but not entirely satisfactory. A more convenient and simple procedure was first to condense the skim milk to the desired concentration.
6. The method of condensing skim milk with the Vacreator is fully described in this bulletin. Directions for determining the density of the condensed milk and for the subsequent standardization of the condensed milk, as necessary, are also given.
7. The "Baby" size Vacreator used in this experiment had sufficient capacity to remove up to 500 pounds of water from skim milk per hour, when operated as described in the bulletin.
8. After condensing, the other mix ingredients were added to the condensed milk in the vat. The complete mix was then homogenized, vacreated at 198 deg. F., and immediately cooled.
9. The bacterial content of the homogenized, vacreated, cooled ice cream mix was very low. Negative phosphatase tests were always obtained.
10. Ice cream of highly satisfactory flavor, mody and texture, and melt-down characteristic was made when:
    (a) the required skim milk was condensed by the Vacreator to the density desired;
    (b) the required other mix ingredients were added to the condensed skim milk;
    (c) the mix was homogenized, vacuum pasteurized and immediately cooled.

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11. Trials involving the condensing of skim milk in a commercial ice cream factory with a "Junior" size Vacreator showed that it was possible to remove approximately 1,000 pounds of water per hour from the milk when the density was increased to that desired for condensed milk to be used in ice cream mix.
12. Whole milk was successfully condensed with both machines.
13. The ice cream made from the mix with which condensed whole milk was used had a superior flavor to that made from mix with which condensed skim milk was used.
14. The steam, water, and electric cost of condensing skim milk with the "Baby" Vacreator in the experiment station laboratory to the density required for ice cream mix containing 10 per cent milk solids-not-fat averaged 8.5c for 100 pounds of mix. This cost would be less under commercial conditions.
15. The method of condensing milk with the Vacreator and subsequent vacreation of the ice cream mix was practical and resulted in ice cream of fine quality.

## Conclusions

1. *Efficiency*

The thermal efficiency of the process at the Oregon State College dairy products laboratory using the present equipment was calculated to be 50.3 per cent, which is rather low. The principal reason for this low efficiency lies in the fact that the flash heater, used as a heat exchanger, did not take all the heat out of the steam but discharged a large amount of uncondensed steam to waste. The efficiency of the process calculated on a similar test run at Uniontown, Pennsylvania, using an efficient heat exchanger, was 91.5 per cent. From the data at hand it can be concluded that one can reasonably expect an efficiency of 85 per cent if the plant is well-designed using an efficient heat exchanger.

2. *Control*

The two control curves for the condensing process at the Oregon State College dairy products laboratory are shown in Figures 9 and 10. Suppose it is desired to start with 1,000 pounds of skim milk with a specific gravity of 1.0385 and to finish with a specific gravity of 1.0585. Looking at the Specific Gravity Curve, the water removed would be 0.33 pound of water per pound of milk. The total pounds of water removed would be 1,000 times 0.33 or 330 pounds. Going to the Water Removal Time Curve the time in minutes for the actual condensing process would be 43 minutes. Similar curves can be drawn for any plant where this process is being used.

3. *Equilibrium and Water Removal Rate*

Referring again to the Water Removal Time Curve it can be seen that the rate of water removed per unit time does not reach a constant until 8 minutes after the condensing process has started. It takes approximately 10 minutes for the process to reach equilibrium. Future investigation will reveal how long the water removal rate will remain constant.

4. *Costs*

The cost of removing 1 pound of water from skim milk with the "Baby" Vacreator at the Oregon State College dairy products laboratory under the conditions of the experiment was approximately 0.193c. Calculations on a similar test conducted with a "Junior" model at Uniontown, Pennsylvania, using Corvallis, Oregon, unit cost figures for steam, water, and electric power resulted in a cost of 0.127c for removing 1 pound of water. It cost 35.4 per cent more to remove 1 pound of water using the equipment at Oregon State College than it would using the equipment at Uniontown.

The condensate from the heating means is shown as going to waste. While this *is* true of the experimental runs made at Corvallis and Uniontown, in actual commercial practice under good conditions this condensate would be returned to the boiler. The heat units contained in the condensate would thus be recovered, less some radiational loss. Had this been done at Corvallis and Uniontown it is fair to assume that the costs of removing each pound of water from the milk would have been reduced from 0.193c to 0.112c and from 0.127c to 0.109c respectively.

If an efficient heat exchanger were installed at Oregon State College, raising the thermal efficiency to that of the Uniontown plant, the cost of water removed would be practically the same for the two plants. This is interesting considering that a "Baby" Vacreator is installed at the College and a "Junior" machine is installed at Uniontown.

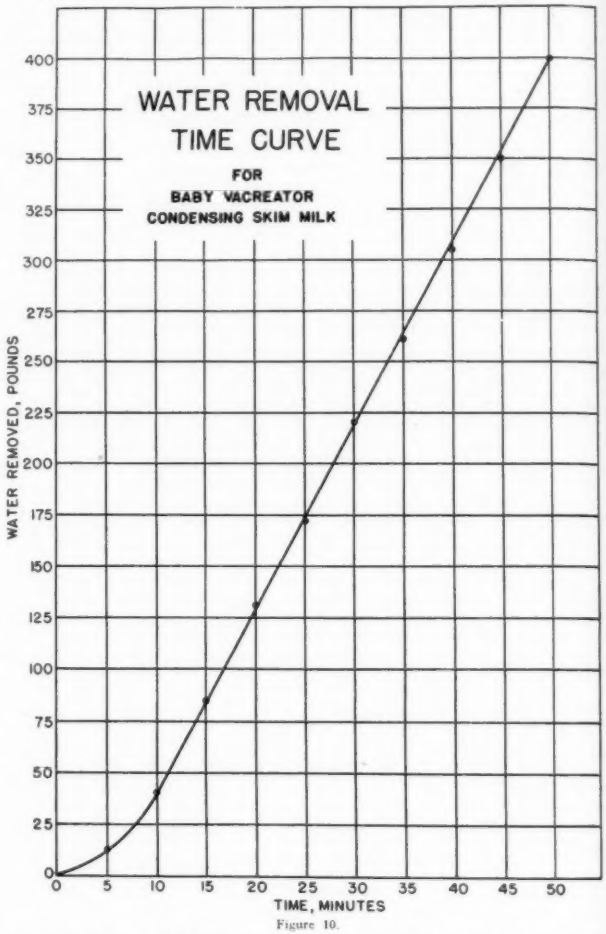

Figure 10.

"Vacreator" is the registered trademark designating the Murray vacuum pasteurizers.

Cooperating in this work were: Mr. H. P. C. Nielsen, instructor in dairy manufacturing; also J. K. Glynn and Wm. S. McFadden, senior students in dairy manufacturing. On graduation both men joined the United States armed forces and served overseas. McCadden was killed in action in France in 1944. The contribution of these men to this research is acknowledged.

The Oregon Agricultural Experiment Station acknowledges the excellent cooperation given in connection with the research to Mr. I. N. Hagan, Mr. A. J. Hagan, the staff of the I. N. Hagan Ice Cream Company, Mr. C. F. Weinreich of the Cherry-Burrell Corporation, and Mr. F. S. Board.

Several drawings were funished by the Cherry-Burrell Corporation and one photograph was furnished by the Taylor Instument Companies. For the use of these the Experiment Station extends its thanks.

The author expresses his appreciation to Dr. J. R. Haag, nutrition chemist, Oregon Agricultural Experiment Station, for reading the manuscript and offering helpful suggestions.

Dr. O. F. Hunziker, Chicago, Illinois, very kindly read the manuscript and made valuable comments.

†G. H. Wilster, **Vacuum Pasteurization of Cream for Butter**, Bulletin 368, Oregon Agricultural Experiment Station, January, 1940.

R. W. Brown, Department of Dairy Husbandry, University of Manitoba, Winnipeg, Manitoba, "Vacreated Cream" published in **The Canadian Dairy and Ice Cream Journal** Vol. XIX, No. 3, March, 1940.

N. E. Fabricius and E. W. Bird, **The Quality of Butter Made From Vacuum-Pasteurized and Vat-Pasteurized Lots of the Same Cream**, Bulletin 284, Iowa Agricultural Experiment Station, November, 1940.

# How High *is the* Price of Milk

**The "Review" presents herewith an extremely interesting and timely presentation of the relative position of the retail prices of milk in the New York Metropolitan area with respect to average wage earnings, which was prepared and issued in mid-July by the Milk Dealers' Association of Metropolitan New York.**

**The following consideration appeared and was released for distribution to its membership by the Association in the form of one of the monthly letters to Association members disseminated by this widely-known organization of milk distributors in this important consuming territory.**

**Further consideration of the factual findings of this summary, and its implications, will be found on the editorial pages of the current issue of the "Review". This entire problem is of major importance to our entire milk business, and our general economy, since it points up so sharply the effects of Federal subsidy payments on the producing and consuming branches of our populace.**

---

RETAIL PRICES of milk in New York have increased 4 cents per quart in a little less than 3 months. Prices are now higher than the preceding peak following World War I. The retail price of milk, however, is low compared to average weekly earnings of factory workers. Except for the period when subsidies were being paid (October 1943–June 1946), retail prices of milk are now about the lowest on record in relation to earnings of factory workers. One of the important effects of the subsidies was to keep the retail price of milk low in relation to prices paid to producers.

No price, by itself, is high or low. Generally, we compare the present price of a product with its price at other times in order to determine whether the price is high or low. Such a comparison shows what has happened, historically, to the price of the single commodity; but it does not show how the price of the single commodity has changed in relation to other products, or to incomes of consumers.

*The relationship* between the prices of various commodities and wages is generally more significant than the actual

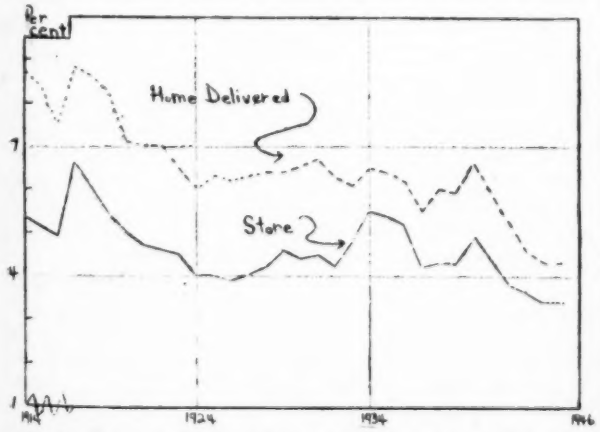


**Figure 1. Cost of 12 quarts of milk at home delivered and store price in New York City expressed as a percentage of average weekly earnings of factory workers in New York annual 1914-1945.**
**Th highest prices of milk in relation to earnings of factory workers occurred in 1917 and the lowest in 1945.**

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prices. The recent changes in the price of milk and other dairy products emphasize this fact.

### Comparison Illuminating

In March, 1946, the average earnings of factory workers in New York State were $48.43 per week. The retail home-delivered price of milk was 17 cents per quart (standard milk 1-quart glass). The Bureau of Agricultural Economics has reported that the average per capita consumption of milk in the New York metropolitan area was about 0.85 pints per day. If each wage earner had three dependents, the weekly purchases of milk per wage earner would average about 12 quarts. This amount of milk at 17 cents per quart would have cost $2.04 per week. Thus, in March, 1946, it would have required about 4.2 per cent of the weekly earnings to pay the milk bill.

In 1938 the retail price of milk (home-delivered in quart bottles) averaged only 13.1 cents. The cost of 12 quarts of milk at this price was $1.57. In the same year, average weekly earnings of factory workers were $26.21. In that year it required 6.0 per cent of earnings to pay the milk bill. Thus, even though the price of milk in March, 1946 was nearly 4 cents per quart higher than in 1939, the percentages of earnings required to pay for 12 quarts of milk was less. That is, the earnings of factory workers had risen in relation to the price of milk.

A comparison of the average weekly earnings of factory workers in New York and the cost of 12 quarts of milk is shown in table 1.

In Figure 1 is shown the percentage of the average weekly earnings of New York factory workers required to purchase 12 quarts of milk per week for each year from 1914 to 1945. The broken line at the top of the chart shows the percentage of earnings required to pay for 12 quarts of milk at the home-delivered price, and the solid line the percentage of earnings required to pay the milk bill if the milk had been purchased at a store instead of having it delivered at the home.

### How Price Comparisons Vary

The highest price of home-delivered milk in relation to earnings was in 1917. In that year, the home-delivered price averaged 12 cents per quart and weekly earnings of factory workers $16.37. At that time it required 8.8 per cent of earnings to pay for 12 quarts of milk. The lowest price of home-delivered milk in relation to earnings was in 1945, when it took only 4.3 per cent of weekly earnings to pay for 12 quarts was equivalent to 6.6 per cent of weekly earnings of factory workers.

The highest price of store milk, in relation to earnings, was in 1917. At that time, loose milk was generally sold at stores—very little bottled milk being so distributed. The prices used in this calculation for that period were the price of milk in bulk. In 1917, the price of 12 quarts of loose milk at stores was equivalent to 6.6 per cent of weekly earnings.

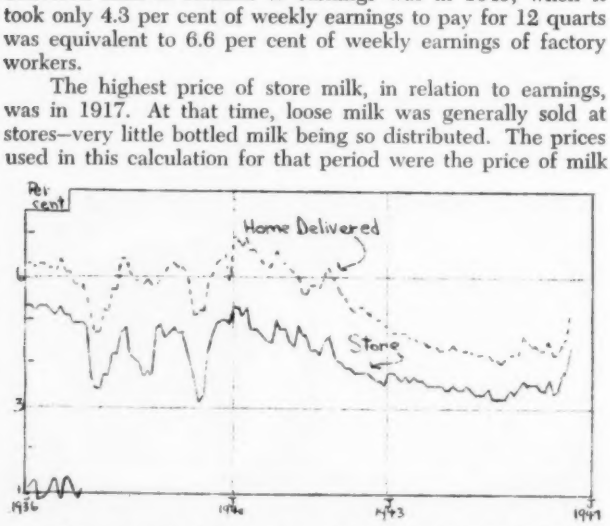


**Figure 2. Cost of 12 quarts of milk at home delivered and store price in New York City expressed as a percentage of average weekly earnings of factory workers in New York monthly January, 1936-July, 1946.**

**In 1946 retail prices of milk rose in relation to earnings of factory workers but milk is still lower in relation to earnings than long time average.**

In March, 1946, the ceiling price of milk at stores in glass was 14.0 cents. Twelve quarts of milk at this price would cost $1.68. This was equivalent to 3.5 per cent of the average weekly earnings. This was about the lowest price of store milk, in relation to earnings, on record.

In April, 1946, the OPA raised ceiling prices of milk in New York one cent per quart, to compensate handlers for the higher cost of doing business caused primarily by the 5-day, 40-hour week which was granted to drivers and inside workers, effective January 15, 1946, and for the elimination of the 20-cent subsidy then being paid on Class I-A or fluid milk sold in the marketing area. Effective June 1, another 1-cent rise in ceiling prices was granted to offset increased prices to producers. On July 8, prices were raised another 2 cents, as a result of paying higher prices to producers. Thus, from mid-April, 1946, to mid-July, prices have increased 4 cents per quart at retail.

**TABLE 1**
**Average weekly earnings of factory workers in New York State, cost of 12 quarts of milk at home delivered price and store price, and percentage of earnings required to pay for 12 quarts of milk 1914-1946**

| Year | Average weekly earnings[1] | Cost of 12 qts. of milk[2] Home delivered price | Store price | Percentage of earnings required to pay for 12 qts. of milk Home delivered | Store |
|---|---|---|---|---|---|
| | | | | percent | percent |
| 1943[3] | $12.48 | $ 1.08 | $ 0.68 | 8.7 | 5.3 |
| 1915 | 12.85 | 1.08 | 0.66 | 8.4 | 5.1 |
| 1916 | 14.43 | 1.08 | 0.70 | 7.5 | 4.9 |
| 1917 | 16.37 | 1.44 | 1.08 | 8.8 | 6.6 |
| 1918 | 20.35 | 1.74 | 1.22 | 8.6 | 6.0 |
| 1919 | 23.50 | 1.92 | 1.28 | 8.2 | 5.4 |
| 1920 | 28.15 | 1.99 | 1.40 | 7.1 | 5.0 |
| 1921 | 25.72 | 1.81 | 1.22 | 7.0 | 4.7 |
| 1922 | 25.04 | 1.75 | 1.15 | 7.0 | 4.6 |
| 1923 | 27.24 | 1.78 | 1.22 | 6.5 | 4.5 |
| 1924 | 27.70 | 1.67 | 1.10 | 6.0 | 4.0 |
| 1925 | 28.26 | 1.78 | 1.14 | 6.3 | 4.0 |
| 1926 | 29.01 | 1.80 | 1.14 | 6.2 | 3.9 |
| 1927 | 29.30 | 1.85 | 1.16 | 6.3 | 4.0 |
| 1928 | 29.44 | 1.87 | 1.25 | 6.4 | 4.2 |
| 1929 | 29.99 | 1.92 | 1.38 | 6.4 | 4.6 |
| 1930 | 28.80 | 1.88 | 1.28 | 6.5 | 4.4 |
| 1931 | 26.42 | 1.76 | 1.18 | 6.7 | 4.5 |
| 1932 | 22.74 | 1.43 | .96 | 6.3 | 4.2 |
| 1933 | 21.83 | 1.33 | 1.04 | 6.1 | 4.8 |
| 1934 | 23.19 | 1.51 | 1.27 | 6.5 | 5.5 |
| 1935 | 24.36 | 1.56 | 1.32 | 6.4 | 5.4 |
| 1936 | 25.34 | 1.56 | 1.32 | 6.2 | 5.2 |
| 1937 | 27.37 | 1.51 | 1.15 | 5.5 | 4.2 |
| 1938 | 26.21 | 1.57 | 1.14 | 6.0 | 4.3 |
| 1939 | 27.29 | 1.61 | 1.16 | 5.9 | 4.3 |
| 1940 | 27.09 | 1.78 | 1.32 | 6.6 | 4.9 |
| 1941 | 31.68 | 1.88 | 1.38 | 5.9 | 4.4 |
| 1942 | 38.40 | 2.03 | 1.45 | 5.3 | 3.8 |
| 1943 | 44.68 | 2.05 | 1.62 | 4.6 | 3.6 |
| 1944 | 47.69 | 2.04 | 1.68 | 4.3 | 3.5 |
| 1945 | 47.99 | 20.4 | 1.68 | 4.3 | 3.5 |
| 1946 | | | | | |
| January | 47.24 | 2.04 | 1.68 | 4.3 | 3.6 |
| February | 45.61 | 2.04 | 1.68 | 4.5 | 3.7 |
| March | 48.43 | 2.04 | 1.68 | 4.2 | 3.5 |
| April | 49.03 | 2.06 | 1.68 | 4.2 | 3.4 |
| May | 49.09 | 2.16 | 1.80 | 4.4 | 3.7 |
| June[4] | 49.09[5] | 2.28 | 1.92 | 4.6 | 3.9 |
| July[4] | 49.09[5] | 2.52 | 2.16 | 5.1 | 4.4 |

[1]Reported by State of New York, Department of Labor.
[2]Prices used were from a tabulation entitled, "Retail Prices of Milk in New York City—Prevailing Price per Quart for the Standard Grade of Milk—'Grade B' or 'Approved.'" compiled by Leland Spencer, Department of Agricultural Economics, New York State College of Agriculture, except that from 1944 to June, 1946, the ceiling price on store milk was used.
[3]Average for months July to December.
[4]Preliminary. [5]The data given is same as reported for May, 1946.

### Present Relationships Considered

We do not have available the average weekly earnings of factory employees for July. However, if July earnings were the same as May earnings, the cost of 12 quarts of milk at the home-delivered price of 21 cents would be equivalent to 5.1 per cent of weekly earnings. This price is higher, in relation to earnings, than in 1943, 1944 and 1945. *Except for those years (when subsidies to both producers and distributors were being paid) the present retail price is the lowest on record in relation to earnings (Table 1).*

With a store price of 18 cents, 12 quarts of milk would

cost $2.16. This is equivalent to 4.4 per cent of the weekly earnings in May. This compares with 3.4 per cent in 1945. *Except for the four years 1942 to 1945, the present store price is about as low, in relation to earnings, as at any time since loose milk was banned.*

The rise in the retail price of milk in New York from April to July, 1946 was rapid. Most of this rise was due to the elimination of subsidies. However, the present prices of milk are relatively low, in relation to earnings of factory workers. In general, the only years when the price of milk was lower in relation to earnings were those when subsidies were paid.

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## Prof. Krauss Heads New Department

**Named Chairman of Department of Husbandry at Ohio State University**

Columbus, Ohio.—Creation of a new department of dairy husbandry in the Ohio State University College of Agriculture to be headed by Professor William E. Krauss, Wooster, was announced June 11, by President Howard L. Bevis.

The new department will combine the dairy husbandry activities of the university with those of the Ohio Agricultural Experiment Station's division of dairy industry, which has been headed by Professor Krauss.

Purpose of the reorganization is to bring dairy husbandry education and experimentation under one management, according to Dean John F. Cunningham of the College of Agriculture.

"Ohio now ranks seventh among the states in milk production," Dean Cunningham said, "and in a field of this significance, we believe it is important to have teaching and research centralized."

In the department of dairy husbandry, Professor Salisbury will supervise the various methods of testing cattle for production, which are directed toward improvement of the efficiency of the state's dairy herds.

Professor Krauss, a native of Newark, N. J., was graduated from Cornell University in 1922 and recived his Ph. D. degree there in 1926 after serving four years as an instructor in animal husbandry. In 1938 he won the Borden $1,000 award and gold medal in dairy production, and has served as chairman of the Committee on Milk of the National Research Council's Food and Nutrition Board. He received the rank of research professor in animal husbandry at OSU in 1944.

Professor Krauss is a navy veteran of World War I and is a member of the American Dairy Science Association, American Society of Animal Production, American Society of Biological Chemists, American Institute of Nutrition, Sigma Xi, and Phil Kappa Phi. Professor Salisbury was born at Collinwood, Ohio, and was graduated from Ohio State in 1913.

Dean Cunningham said that an important phase of the reorganization will be the bringing together of all types of dairy cattle testing in Ohio under the management of Professor Schuyler M. Salisbury.

He was an instructor in dairying at the North Carolina College of Agriculture and Mechanic Arts from 1913 until joining the OSU faculty in 1915. From 1918 to 1920 he served as county agent in Medina County, Ohio, and in 1920 became head of the animal husbandry department at Massachusetts Agricultural College.

He received the rank of professor of animal husbandry at Ohio State in 1923. Professor Salisbury is a member of the American Dairy Science Association and Gamma Sigma Delta.

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# N. E. Council in Action

## Leaders Pledge Support to Program Designed to Stabilize Demand and Insure Industry's Future Welfare

DAIRY INDUSTRY LEADERS in New England have reorganized the New England Dairy and Food Council and laid plans for a broad basis of support from the dairy industry of this region as an affiliated unit of the National Dairy Council. Leaders among both producers and dealers have pledged their support to this forward looking program for stabilizing the demands for dairy products and insuring the future welfare of New England's Dairy Industry.

E. M. Harmon

Carl Hamblen, dairy plant manager at St. Albans, Vermont, has been chosen to head this revived and revitalized organization for the coming year. Other officers elected are: Vice-President — Weston Haskell, H. P. Hood and Sons, Charlestown, Mass.; Secretary — Herman Carr, Deerfoot Farms, Southboro, Massachusetts; and Treasurer — Robert Burns, Whiting Milk Co., Charlestown, Massachusetts. The Executive Committee includes also: John McGrath, Milton Cooperative Creamery, Milton Vermont; Howard Selby, United Creamery, Milton, Vermont; Howard Selby, United Farmers, Farmers, Boston, Massachusetts; John Hancock; Vermont Dairies, Hardwick, Vermont; Roy Ware, Richmond Cooperative Creamery, Richmond, Vermont.

### Directors Elected

Directors include Elmer Towne, Mount Mansfield Cooperative Creamery, Mount Mansfield, Vermont; Geore Bailey, Bethel Cooperative Creamery, Bethel, Vermont; Len Lawson, Northern Farms Cooperative, Newport, Vermont; Walter Mosher, Maine Dairymen, Farmington, Maine; A. Glen Simm of the J. B. Prescott Company, Bedford, Mass.; Leslie McAdams of the J. F. McAdams Company, Chelsea, Massachusetts; John Gill of Herlihy Bros., Somerville, Mass.; Harry Smith of Lyndonville Creamery, Watertown, Mass.; Ed White of White Bros., Quincy, Mass.; and Herbert Buttrick of the D. H. Buttrick Company, Arlington, Mass.

### Cooperatives Support Program

Among the cooperative organizations committed to support this program are: Milton Cooperative Creamery, Milton, Vermont; United Farmers, Charlestown, Massachusetts; St. Albans Creamery, St. Albans, Vermont; Mount Mansfield Creamery, Mount Mansfield, Vermont; Bethel Creamery, Bethel, Vermon;t Northern Farms, Montpelier, Vermont; Maine Dairymen, Farmington, Maine; Vermont Dairies, Bradford, Vermont; Richmond Creamery, Richmond, Vermont. A number of other cooperatives have indicated a desire to have the Dairy Council program presented to them with a view to joining.

At the meeting reorganization plans were made for sending letters and explanatory material to all producers who are to be contacted as individuals. In some cases, meetings will be held and individual canvasses made. Every effort will be put forth to explain the vital importance of this educational program to the longtime welfare of New England agriculture.

"Every producer knows," stated E. H. Jones, former Commissioner of Agriculture in Vermont and who has spearheaded this reorganization campaign, "that famines follow feasts. It is true we can't get enough milk now. We've been through times like this before. They've always been followed by periods of low demand, poor Class 1 milk sales and low blended prices."

"We are going to give New England farmers a chance to help prevent that again," continued Mr. Jones. "By authorizing a normal deduction from his milk check, he can do his part towards educating those youngsters who will be the home makers tomorrow and help prevent another of those economic crises that was terrorizing all New England agriculture twelve to fifteen years ago. Thousands of farmers are already committed to this program. Dealers will match every cent farmers put up. I have enough confidence in the good business judgment of my fellow New England farmers to believe we are going to have splendid support to what I think is the best investment a milk producer can make."

# "Today and Yesterday" Broadcast

## Dairymen's League Cooperative Sponsors New Radio Program of Interest to Milk Producers

Two experienced agricultural broadcasters and a weekly guest speaker feature the new radio program of the Dairymen's League Co-operative Association, "Today and Yesterday," prepared especially for dairy farmers and carried 15 minutes each Sunday morning over 11 stations in three northeastern states.

The program originates at Station WHCU in Ithaca, N. Y., where Lee Hamrick, radio program director for Agricultural Advertising & Research, Inc., who has been doing farm broadcasts, off and on, since 1937, presents brief, up-to-the-minute farm news at the start of each "Today and Yesterday." This news is prepared by Richard Armfield, of Agricultural Advertising and Research, which handles the show for the League.

Romeyn (Rym) Berry, farmer-philosopher of Jacksonville, N. Y., known as "The Squire of Stoneposts," follows with his whimsical and humorous observations and comments on life at his Stoneposts Farm.

Hamrick then interviews the guest. On the first broadcast, June 2, Dr. L. A. Maynard, head of the Cornell University School of Nutrition, told of the food value of milk, in connection with June Dairy Month. A third generation League member was the second guest. The program also includes a section devoted to League history, on a year-to-year basis, since World War I.

Broadcasting "Today and Yesterday," each Sunday morning are: WHN, New York, at 8 a.m. (E.D.T.); WGY, Schenectady, N. Y., at 8:15 a.m.; WHCU, Ithaca; WSYR, Syracuse, N. Y.; WGR, Buffalo, N. Y.; WWNY and WATN, Watertown, N. Y.; WMSA, Massena, N. Y.; WCAX, Burlington, Vt., and WGBI, Scranton, Pa., all at 9:15 a.m. WHAM, at Rochester, N. Y., makes a transcribed rebroadcast from 9:30 to 9:45 a.m. (E.D.T.).

### Offices of Technical Services

This being the time when Government agencies map out

their new plans for the fiscal year, the Office of Technical Services has undertaken an expanded program of service to business and industry.

By July 1 the OTS issued close to 300 news releases. These releases were written primarily for business and technical papers. In writing releases on reports, this bureau selected from the 20,000 reports received by this Office those of most immediate value to American business. The Association tried to avoid burdening any editor with releases outside his field.

Before the end of the year the *Bibliography* will be indexed. It will then be possible, for the first time, to write comprehensive stories surveying the sum total of the material collected so far.

## Fellowships For Graduate Study

**Borden Company Foundation Announces Awards to Be Given in Interest of Girl Scout Movement**

Ten fellowships for graduate study in social work have been given to the national Girl Scout organization by the Borden Company Foundation, Inc., it was announced recently by Mrs. Paul Rittenhouse, Girl Scout national director.

The Borden Girl Scout Fellowships will be awarded to young women who have served as volunteer leaders of Girl Scout troops or have had similar group work experience to help them prepare for a professional career in Girl Scouting. The Fellowships will be granted on the basis of two $500 awards a year for five years. The ten recipients of the awards will be selected by the Girl Scout Fellowship Committee which chooses personnel for all fellowships granted through the Girl Scout Fellowship plan.

"The Borden Company Foundation has made a careful study of Girl Scouting and the need for more trained people to work in youth-serving organizations," Mrs. Rittenhouse stated in announcing the awards. "The rapidly increasing membership of the Girl Scouts—now well over the million mark—indicates the tremendous expansion of opportunity for professional work in this field. The Borden Company Foundation's Fellowships will make it possible for ten young women to prepare themselves for a useful and satisfying career in behalf of the young people of the nation."

Mrs. Rittenhouse explained that although Girl Scouting is carried on almost entirely by volunteers, trained professional workers are needed in key positions to assist volunteer leaders and council members in the development of local Girl Scout programs.

"There are more than 250,000 men and women working in Girl Scouting as volunteers at the present time," she said. "They provide the sponsorship and leadership that enables girls in more than 8,000 communities to be Girl Scouts. There are only about 1,200 professional workers in the entire organization who serve on the Girl Scout national staff and in local jobs."

Mrs. Rittenhouse stated that the national Girl Scout organization hopes to be in the position, eventually, to offer at least sixty fellowships, similar to the Borden Girl Scout awards, so that a constant flow of trained workers will be made available to the Girl Scout movement.

The Girl Scout Fellowship Committee, which will select the first two young women to receive Borden Girl Scout awards, is composed of Mrs. Nathan Mobley, Greenwich, Conn., member of the Girl Scout national board of directors; Mrs. Roy F. Layton, Short Hills, N. J., member of the Girl Scout national personnel committee; and Dr. Annemarie Schindler, of the Girl Scout national staff.

Borden Girl Scout Fellowships will be awarded on the basis of character, background, experience, academic suitability and the promise of becoming successful in local Girl Scout professional work, Mrs. Rittenhouse stated.


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FACTORIES, WAREHOUSES, BRANCHES, OFFICES OR DISTRIBUTORS AT YOUR SERVICE IN 52 CITIES



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No harsh abrasive or acids. Yet SEP-KO penetrates and loosens milk stone, water scale and other deposits without the use of steel wool or acids. Proper flush washing is done easier, faster. Ask our representative.

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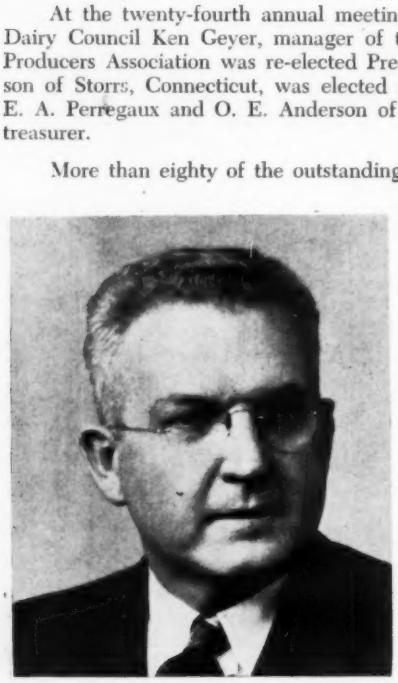
# Heads Connecticut Dairy Council

**Ken Geyer Re-elected President of Unit — Other Officers: Stewart Johnson, E. A. Perregaux and O. E. Anderson — Educational Program Gains Momentum**

At the twenty-fourth annual meeting of the Connecticut Dairy Council Ken Geyer, manager of the Connecticut Milk Producers Association was re-elected President. Stewart Johnson of Storrs, Connecticut, was elected secretary in place of E. A. Perregaux and O. E. Anderson of Storrs was reelected treasurer.

More than eighty of the outstanding leaders of the dairy industry of Connecticut were present to study reports and to help plan the program and activities of their Dairy Council unit as it enters into its twenty-fifth year of existence. To undertake to list the agencies, institutions and organizations which have come to rely on the Dairy Council to keep them supplied with nutrition and health aids would require cataloguing practically every organization in the state of Connecticut which has an interest in the health and well being of the citizens of that area.



KEN GEYER
Northeastern States Chairman

These helps include posters, leaflets, booklets, exhibits, radio script and radio talks, conferences, nutrition talks and publicity in all its phases. With offices in Hartford, Bridgeport and New Haven there is never a dull moment for Director June Bricker or any of the four highly trained nutritionists on her staff.

**Cooperative Publicity**

While publicity and radio time are somewhat of a by-product of Dairy Council work yet, according to Mr. Geyer, the value of the free time given Dairy Council on radio amounts to more than the entire budget of that organization in Connecticut. The same is true, he states, of free newspaper space. Furthermore, Mr. Geyer insists that such time and space are worth much more to the dairy industry than would be the case if the time or space were paid for because they are presented as helpful sustaining programs in the news sections rather than in a commercial atmosphere. In fact, the whole Dairy Council program is of a character which cannot be bought with money and is valuable because it accomplishes for the industry what the industry cannot accomplish for itself.

Another measure of the scope and influence of the Connecticut Dairy Council may be gained from the fact that during its twenty-fourth year educational material was distributed on request to 1,363,126 people. Films and slides were furnished to 636 groups; 38 exhibits were maintained at important state and district meetings; 180 talks on nutrition were given at meetings and 8269 contacts were made with key leaders to help them with their nutrition programs. Almost four million people were reached by radio and probably an even greater amount through news releases to round out a most comprehensive program in building the stability of New England agriculture and in creating a long time demand for appreciation of its most important crop — milk and milk products.

The necessity of going forward with all Dairy Council work was recognized and approved by all so industry may be prepared to meet its post war problems. As milk producers, milk dealers and ice cream manufacturers throughout the northweast organize to support similar programs in other cities they will be able to find much of value to them in the work done in Connecticut.

# Refrigeration Exposition Plans

Chicago, Ill.—More than 100 companies in the mechanical refrigeration, air conditioning and frozen food locker industry already have contracted for space in the industry's first complete post-war Exposition to be held in the Cleveland Public Auditorium, October 29 to November 1.

This was announced recently by K. B. Thorndike, a director of the Refrigeration Equipment Manufacturers Association and chairman of the committee directing the show for REMA and the Frozen Food Locker Manufacturers and Suppliers Association, which is cooperating in sponsorship.

The list of presently recorded exhibitors reveals manufacturers covering all branches of the industry including parts, refrigerants, complete units and complete systems in the refrigeration, air conditioning, locker plant and frozen food equipment fields, and many products and materials associated with these fields.

The latest list of exhibitors made public by Mr. Thorndike shows 105 companies, all members of the Refrigeration Equipment Manufacturers Association and the Frozen Food Locker Manufacturers and Suppliers Association.

# General Mills to Build Addition

Construction of a new one-story, hangar-shaped building at Keokuk, Iowa, which will add to the facilities of the company's special commodities division, has been approved, it is announced by Harry A. Bullis, president of General Mills. Work on the building will begin as soon as materials are available.

The new structure will be built adjacent to the present special commodities plant at 410 Johnson St. in Keokuk. Equipment for the manufacture of pharmaceutical products will also be installed.

Space released in the present special commodities building will be used for enlarging the division's starch-gluten production.

# UNRRA Livestock Shipments During May

During the month of May the UNRRA livestock program for Czechoslovakia, Poland and Yugoslavia has been moving at an increasing rate. From the end of April, shipments already made or scheduled to leave ports before May 31, on the basis of incomplete figures, included, from the western hemisphere for Poland, 6,829 horses and mares; for Yugoslavia, 1,340 head of cattle and 1,000 horses and mares; and for Czechoslovakia, 2,425 horses, 1,584 mares and 1,609 head of cattle, including 22 bulls.

UNRRA officials point out that grazing land for both dairy and draft animals is plentiful in the areas where livestock are sent.

The dairy cattle originate in Wisconsin, Illinois, Ohio, Minnesota and Pennsylvania.

# Yami Yogurt Expansion

**Sponsors of Cultured Milk, Well Established in Southern California, Adopt Unusual Themes in Effective Advertising Program**

The sponsors of Yami Yogurt, Yami Yogurt Products, Inc., of Beverly Hills, California, stress in their advertising that the product is not only a very healthful milk-food, but also that it can be a great ally in putting new taste zest and new adventure in every day cooking.

The product has been marketed very successfully in the Los Angeles area for the last three years. It is now available in a large majority of the food markets from Santa Barbara down to San Diego. It is also home delivered on the routes of the leading West Coast dairy, Golden State Company.

Until recent years, Yami Yogurt was almost unknown in this country. To introduce the product to the public required an extensive advertising campaign designed to serve a two-

Typical Yami Yoghurt Billboard Featuring "Health-Food".

fold purpose: one, to acquaint consumers with the history and health value of the product; and, two, to stimulate the desire to add it to the daily diet.

Introductory advertising, tells generally the history of this milk-food and specifically its modern development. Referring to the Old Testament, it is pointed out that Abraham and Moses included Yogurt in their lists of permitted foods. It was "reverently hailed by the Arabs as 'the milk of the Prophet'". Known for centuries throughout most of the world, it has been variously called Varenetz by the Russians, Yaourty by the Greeks, Yogurt by the Bulgarians.

The Russian biologist, Metchnikoff, Nobel Prize Winner, impressed with the longevity and vigor of inhabitants of the Balkans and Russian Caucasus, learned that their every-day dish was a special cultured food called Yogurt. The genuine Bulgarian Yogurt culture developed at the Rosell Bacteriological Dairy Institute (located in the Trappist monastery in Canada) is added to whole milk and forms the custard-like milk food now sold under the trade-name Yami Yogurt.

Points brought out in the company's advertising include: (1) Yami Yogurt is a food, not a medicine; (2) it is rich in nourishment yet is non-fattening; (3) it is easy to digest and assimilate, has a regulative effect which helps to overcome constipation.

Suggestions are offered on the uses of this cultured milk. The product has a tart taste, but may be sweetened by the use of jams, sugar, or honey. It may be spiced, or it may be used as the basis for varied salad dressings. Or, it may be

USE "TOPS-ALL" BOTTLE CAPS

Always insist on high quality when quality is so important. "TOPS-ALL" caps are manufactured from the best materials available. Protect your milk and cream with the finest bottle caps made.

ROBERT S. LEONARD CO.
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Everyone benefits when bright, sanitary milk cans are used. SOLAR-STURGES cans are the nation's top favorite because they are so easy to keep clean; so durably tinned; and so economical to use.

These popular containers help you get your product to market in tiptop condition — and to get top prices.

SOLAR-STURGES MFG. CO.
MELROSE PARK, ILL.

eaten as it comes out of the jar "for those who prefer its naturally tart taste".

Distribution is accomplished through local dairies which secure exclusive franchise rights on a royalty basis. Advertising in all media in all markets is placed by Yami Yogurt Products, Inc.

## Dry Milk Institute Officers

**Clyde E. Beardslee of The Borden Company Elected Chairman of Executive Committee at Chicago Meeting**

The first meeting of the new and enlarged twenty-one man board of directors of the American Dry Milk Institute, Inc., was held at the Bismarck Hotel, Chicago, June 5. It was fully attended and filled with constructive action.

Among its principal items of business was the election of the executive committee and officers. The officers serve as officers of the excutive committee as well as of the Institute. The executive committee is authorized to serve the Institute between meetings of the board and in its absence.

Those elected were: Chairman, C. E. Beardslee, The Borden Company, New York; Vice Chairman, H. R. Leonard, Twin City Milk Producers Association, St. Paul, Minn.; Secretary-Treasurer, M. J. Metzger, Bowman Dairy Company, Chicago, Ill.; E. A. Pool, Dairymen's League Cooperative Association, New York; C. M. Peterson, Kraft Foods Company, Minneapolis, Minn.; M. M. Boney, Whatcom County Dairymen's Association, Bellingham, Wash.; Paul Young, Golden State Company, Ltd., Chicago, Ill.

Considerable time was spent discussing means of fulfilling government needs for dry milks. Reports on production trends by geographical areas indicate a receding fluid milk supply. Commendation was expressed to the Banking and Currency Committee of the Senate for its recommendation to eliminate OPA controls on milk products, which is needed to gain the confidence of dairy farmers and to increase milk production.

## Can Durability Tests

An inquisition of college research and Army laboratory testing has proved the durability of the steel-and-tin can and the nutritive value of the food products it contains, according to Mrs. Harriet Sabine, Director of Consumer Information for the Can Manufacturers Institute. Mrs. Sabine has told the findings to 28,000,000 consumer families on a national tour of guest appearances on homemaking broadcasts.

Significant to canned product distribution and marketing are the war-time can durability tests, conducted by the Army Quartermaster Corps, which Mrs. Sabine is revealing on her broadcasts. The can was put through a scientific third degree —exposed to radical temperature changes, immersed in water for long periods and pounded with heavy missiles. These rigid tests evidenced the can's fitness for use at the front lines where there were no "handle with care" signs, and incidentally for peacetime grocery shipments where loss through breakage is an importatnt profit factor.

Further research, which Mrs. Sabine has broadcast, was conducted by five leading universities to examine the nutritional value of canned foods. This research revealed that foods lost none of their caloric, protein, or mineral value during the canning process. Vitamin loss proved to be less than the loss which ordinarily occurs in the home cooking of fresh vegetables.

Mrs. Sabine is currently scheduled for guest appearances on broadcasts from other sections of the country.

# ADA Broadcast Recorded

**Secretary Anderson's Interview for American Dairy Assn. Placed in Congressional Record — Representative Andresen Cites Industry Needs**

THE COMPLETE TEXT of the interview between Everett Mitchell, noted farm commentator, and Secretary of Agriculture Clinton P. Anderson, broadcast over the NBC network recently, has been reprinted in the Congressional Record, through the interest of Representative August H. Andresen of the 1st Minnesota District.

The broadcast, aired over the American Dairy Association's weekly "Voice of the Dairy Farmer" program, was of especial pertinence to the dairy farmers and their industry, because in it the Cabinet Member not only stressed the vital importance of dairy foods to the nation's health and economy, but also called for public support of the industry-wide goal of full production at a fair price.

**Instance of ADA in Action**

"This was another instance in which the ADA was at work for the dairy farmers and the dairy industry," Owen M. Richards, general manager of the American Dairy Association, pointed out.

"The Secretary of Agriculture's support of policies that lead to full production is of vital importance. The prestige of the Department of Agriculture itself helped to drive the industry's message home to the public, through full-color newspaper ads seen by more than 16,000,000 persons and over the ADA's own radio program, which reaches millions more, right in their homes. Finally, the industry's views were driven home to the members of Congress in the Congressional Record itself."

**Industry-Wide "Voice"**

The dairy farmers and their industry have a voice in molding public opinion, creating public understanding, and winning public support through their ADA program of advertising, public relations, promotion, merchandising and research that works for them around the calendar, Mr. Richards pointed out.

"National policies affecting any part of the dairy industry affect the whole industry," he emphasized. "By uniting behind their ADA program the producers, processors and distributors alike are using the freedom of speech guaranteed by this democracy to win public support for policies permitting full production of the dairy foods that this nation wants and needs."

## Office of Technical Services

Washington, D. C.—Establishment of an Office of Technical Services, headed by John C. Green, was announced July 9 by the Department of Commerce. The new Office consolidates the work of the Office of the Publication Board, Technical Industrial Intelligence Branch, National Inventors Council, and Production Research and Development Division.

According to Mr. Green, who has served as Executive Secretary of the Publication Board and Chief Engineer of the National Inventors Council, the Office will continue the work of the consolidated units and launch a new program of technical aid to business and industry. The 1946-47 appropriation, just approved by Congress, includes increased administrative funds for the new Office, as well as $1,500,000 for research and development.

## Thatcher Company Changes

In a recent communication to the holders of convertible preference and common stock of the Thatcher Manufacturing Company, Franklin B. Pollock, president, stated that a special meeting of stockholders has been called for August 29, 1946 to consider and take action upon the following proposals: (1) To amend the by-laws, (2) To change the present no par common stock to $5.00 par value and to change each outstanding share of common stock into two shares of the new $5.00 par value common stock and (3) To change the corporate name of the company.

Relative to the split up: the Board of Directors, he stated, believes that it would be advantageous to all stockholders if a wider distribution of the common stock were obtained. This in turn should provide a broader market.

It is proposed to accomplish this by an amendment of the certificate of incorporation which will increase the authorized common stock of the company from 750,000 shares, without par value, of which 173,602 shares are presently outstanding, to 1,500,000 shares, of the par value of $5.00 per share. Each share of the present stock without par value (stated value, $10.00 per share) would be changed into two shares of the new common stock having a par value of $5.00 per share.

The convertible preference stock which is now convertible into 1-1/5 shares of common stock will be converted into 2-2/5 shares of the new $5.00 par value common stock as a result of the split up.

Relative to the change in the name: it is proposed that the name of the company be changed to Thatcher Glass Manufacturing Company, Inc. The board of directors is of the opinion that the inclusion of the word "Glass" signifying the principal product produced by the company is desirable and would be more descriptive of its business.

## Wiring in the Dairy Industry

If anyone has the time and inclination to follow a can of fresh milk from the dairy farm until it reaches the ultimate consumer, he'll probably be surprised how much electricity and electrical wire are involved in producing cream for the breakfast table, and butter (when you can get it) for your bread.

Starting from the dairy farm, if the milk is shipped to the dairy by rail, electricity gets on the job the minute the shipment reaches the plant. A service cable is connected to the milk car to provide current for lighting and power to operate the pump, which pumps the milk from the car and through pipes into the plant.

Inside the plant itself, at least 60 per cent of all operations are done electrically. Cream separators, pasteurizers, pumps, conveyors, compressors, homogenizers, bottle and can washers, bottling machinery—all are powered by electricity. In most modern dairy plants, the various pieces of equipment are individually motor-driven.

Since milk is a highly perishable food, continuous operation of dairy equipment is vital. Consequently, operating dependability is of supreme importance in electrical equipment and wiring. Probably the chief source of potential electrical trouble in a dairy is the water involved in dairy operations. Sanitation is the first law in the plant, and thousands of gallons of boiling water are flushed through the circulatory system daily, and all equipment is taken apart, scrubbed and thoroughly sterilized. With all this water in close contact with equipment, water-proof insulation of motors and wiring is absolutely essential. In the opinion of some dairy operators, plastic-insulated wire stands up better and longer than wire with other types of insulation.

*The Anaconda Wire, May 1946.*


Fully Sweetened

**ORANGE AND GRAPE**

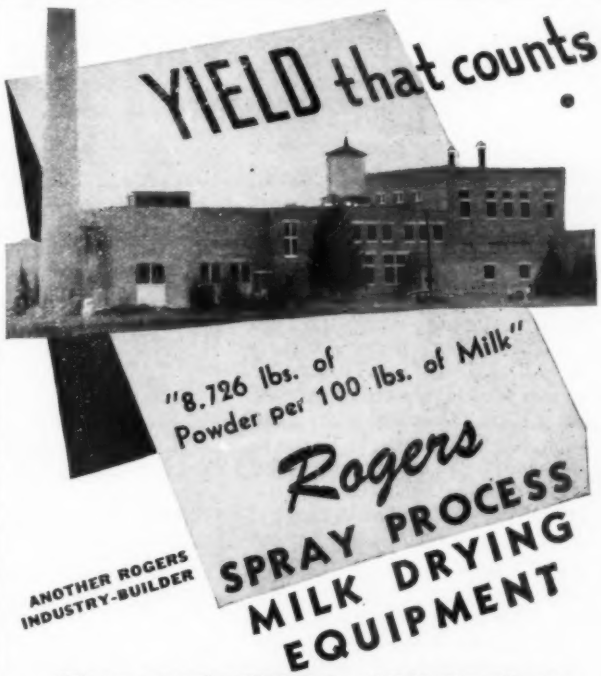
**DAIRY BASE CONCENTRATES**

These SYRUPS are top quality, second to none and fully sweetened. Your people will admit they have never tasted better. Our MONEY BACK guarantee goes with every drop. You dilute this Base with 5 parts of filtered Water. After diluting you will have 300 gallons ready to drink.

**O'DONNELL & COMPANY**

**4840 DREXEL BLVD., Dept. A. CHICAGO 15, ILL.**




YIELD that counts
"8.726 lbs. of Powder per 100 lbs. of Milk"
Rogers
SPRAY PROCESS MILK DRYING EQUIPMENT
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**"We are processing 450,000 lbs. of fluid skim milk per day into powder in a 20 hour run. Our yearly yield per 100 lbs. of milk is 8.726 lbs. of saleable powder," writes Wisconsin Cooperative Creamery Ass'n. of Union Center. Proof again that buying Rogers equipment is good business . . . for good business.**

**C. E. ROGERS COMPANY, 8731 WITT ST., DETROIT 9, MICH.**

# Hedging Trouble

**Coop. Organizations Check-mate Talk of Buyers "Strikes"—Today's Prices and Farmer's Wage Compared**

Nation-wide talk of buyers strikes against dairy products was given a new turn in July when three large Minnesota farm organizations launched a wide-spread advertising and news campaign citing facts to show the Minnesota dairy farmer of above-average efficiency gets less than 53c an hour for his work.

All figures were based on official reports. Statisticians figured the 53-cent wage *at current prices* which the farmer gets for his dairy products and *at current prices* which he pays for livestock feed and other costs of dairying.

Three organizations whose joint membership comprises almost the entire farm population of Minnesota sponsored the campaign, which placed full-page ads in every daily and Sunday newspaper in the state. Copies of the ad were sent to every member of Congress while they debated OPA controls, and to scores of other publications.

"How can anyone justify a buyers strike against men who earn less than 53c an hour?" asked a joint statement by officials of the three sponsoring organizations. The three are: J. S. Jones, secretary of the Minnesota Farm Bureau Federation; W. S. Moscrip, president of the Twin City Milk Producers Association; and John Brandt, president of Land O'Lakes Creameries, Inc.

They backed up the dairy farmer's 53-cent wage by listing facts taken from two studies—one of them just completed—made by the division of agricultural economics, University of Minnesota and the U. S. Department of Agriculture's bureau of agricultural economics.

"Skilled laborers earn double to more than triple the farmer's wage, and even unskilled laborers get a better return for their work," said the statement. The dairy farmer is a highly skilled worker. He owns his own tools and equipment. He has invested in cattle, in fields, in barns, in high priced feeds. And his investment is one continual risk. Yet he must be well above the state average to net himself 52½c an hour.

"The dairy farmer need not apologize for prices on the food he produces. His investment, risk and toil deserve a return that is fair. Dairy farmers must work seven days a week. They do *not* get time and a half for dawn to dusk labor. They do *not* get double time for Sundays and holidays. They do *not* get vacation with pay. And they are *not* restricted on their output per hour.

"Today's prices on dairy foods in legitimate sales—not in the black market—are higher chiefly because the government formerly paid part of the consumer's bill in subsidies—13c to 15c on every pound of butter, 2c to 3c on every quart of milk, more than 5c on each pound of cheese, and so on down the line.

"The government recognized that its artificial ceilings were below the farmer's cost of production, and paid subsidies to make up the difference in production costs. The dairy subsidy cost taxpayers more than one and a half *billion* dollars a year. And millions were spent to administer the OPA which maintained these artificial ceilings."

Feed, the most important raw product in dairying, has skyrocketed in price, the statement pointed out, and milk-production costs have jumped too.

Fifty-three cents an hour—today's wage of an efficient Minnesota dairy farmer—is based on two official reports of the University of Minnesota Department of Agriculture and the United States Department of Agriculture. These reports are not guesswork. They cover 201 dairy farms in 14 counties of southeastern Minnesota, and intensive dairy section where efficiency is proved to be above Minnesota's average. Dairy cows on these 201 farms each produce 257 *more* pounds of milk and nine pounds *more* butterfat yearly than the state average.

*Even so, each cow produces only .55 lb. of butterfat in one day—much less than a pound of butter for two milkings!*

*Every factor was figured so carefully that each cow's yearly income was credited with an extra $10 for the fertilizer value of its manure!*

Yet, figuring all costs—including those of feed at prices quoted on July 18 in the farm areas, and allowing a return to the farmers of 80 cents per pound for butterfat plus 90 cents a hundredweight for skimmilk, the yearly net income per cow was $76.14.

Official state figures show the average man-hours of labor spent on each cow is 145 hours per year.

*At Today's Prices*

**THE DAIRY FARMER MAKES LESS THAN 53¢ AN HOUR***

**HOW MUCH DO YOU MAKE?** You make double and triple this amount, if you are a skilled laborer.

Even if you are an unskilled laborer, you make more than a skilled dairy farmer.

THE DAIRY FARMER IS A HIGHLY SKILLED WORKER.

. . . he owns his own tools and equipment. He has invested in cattle, in fields, in barns, in high priced feeds. This investment is one continual risk.

STILL . . . AN EFFICIENT MINNESOTA DAIRY FARMER MAKES LESS THAN 53c AN HOUR! This figure is NOT GUESSWORK.*

Fifty-three cents an hour includes the full value of his milk, whether it is sold as whole milk, made into ice cream and cheese, or separated and sold as butterfat and skim milk.

**DO YOU KNOW . . .** today's price on dairy products in legitimate sales . . . *not* in the black market . . . is higher chiefly because the government formerly paid part of your bill in subsidies . . . and you paid the subsidy in taxes to make up the farmer's cost of production! This subsidy cost you in taxes more than one and a half *billion* dollars in one year.

**DO YOU KNOW . . .** it cost the taxpayers another 150 million dollars to administer the OPA, which maintained these artificial ceiling prices on dairy foods!

**DO YOU KNOW . . .** the *cost of* producing milk is higher just like everything else today. Feed, the important raw product, has skyrocketed.

**DO YOU KNOW . . .** the dairy farmer *must* work seven days a week. He does not get time-and-a-half for dawn to dusk labor. He does not get double time for Sundays and holidays, or vacation with pay. And he is not restricted on his output per hour.

Yet he must be well above the state average to net himself 52½c an hour!

THE DAIRY FARMER NEED NOT APOLOGIZE FOR PRICES ON THE FOOD HE PRODUCES.

His investment, risk and toil deserve a return that is fair. At today's prices, he is making less than 53c an hour. How much do you make?????

*Would You Swap Jobs with Him?*

***WHO SAYS 53¢? . . . Read This and Know the Facts**

Fifty-three cents an hour is not based on the experience of one isolated farmer.

It is based on two official reports of the University of Minnesota Division of Agricultural Economics and the U. S. Department of Agriculture's Bureau of Agricultural Economics. These are known as Mimeographed Report No. 174, not published, and Mimeographed Report No. 150.

These reports are not guesswork. They cover 201 dairy farms in 14 counties of southeastern Minnesota—an intensive dairy section where efficiency is far above that of Minnesota's average. Dairy cows on these farms each produce 257 *more* pounds of milk and nine pounds more butterfat yearly than the state average. Even at that, each cow produces only 55 lb. of butterfat in one day—much less than one pound of butter for two milkings!

If cows records were kept every day on these farms, under close supervision of field workers. They show every hour of work spent on dairying, they show costs of feed, and they show the entire income from milk. This included all values of the whole milk, not the butterfat alone.

Every farmer was figured so closely that each cow's income was credited with an extra $10 because of its manure!

Yet, figuring all costs—including those of feed at prices quoted on July 17 at the farm areas, and allowing a return of 80 cents per pound for butterfat plus 90 cents a hundredweight for skim milk, the yearly net income per cow was $76.14.

Official state figures show the average man-hours of labor spent on each cow is 145 hours per year. Divide 145 into $76.14, and you will get the same answer as scientists for the division of agricultural economics! The skilled dairy farmer, at today's prices, gets only 52 ½ c an hour for his labor.

If the farmer got $1 an hour, your butter would cost more than $1.50 a pound *at the creamery*. Add time and a half for overtime, and the figure would top $1.85 . . . Your own imagination can tell you what double time for Sundays and holidays would do.

*Can Anyone Justify a Buyers Strike Against 53¢ an Hour?*

**MINNESOTA FARM BUREAU FEDERATION • TWIN CITY MILK PRODUCERS ASS'N**

**LAND O' LAKES CREAMERIES, INC.**

**Reproduction of newspaper advertisement designed to counteract agitation and effectiveness of consumer strikes against dairy products**

# Annual Feed Shortage Seen As Being Currently Relieved

### American Feed Manufacturers Association Points Toward Changing Picture in Quantities Potentially Available

CHICAGO, ILL.—The animal feed shortage, until just recently the most serious in our country's history, is now about over, the American Feed Manufacturers Association declared Auust 6. In a statement which contained good news for farmers, as well as city consumers of meat, milk and eggs, the feed association also revealed:

That livestock and poultry feed pipelines, long practically empty, are flowing almost normally again;

That feed supplies will be so plentiful during the 1946-47 crop year that a desired increase in production of meat, dairy, and poultry products will result—provided OPA price controls are not reestablished on feedstuffs and farm products;

That there will be enough feed available to feed all our livestock and poultry without using any more wheat for feeding than was used before the war;

And that feed supplies will be so large that at no time during the coming year will the cost of feeds in a free market become unreasonably high.

#### OPA End Responsible

The rather sudden improvement in the feed picture, according to the feed manufacturers, is the result of the expiration of OPA price ceilings on farm products, the progressive development of prospects for bumper feed grain production this season, and some reduction in livestock numbers.

The Association based its predictions primarily on the U. S. Department of Agriculture's July 15 crop report which estimates a record corn crop of 3,488,000,000 bushels. The feed men said that indications are that it will not only be the largest corn crop in history, but will be high quality as well. They explained that corn is the basic feed ingredient, representing 75 to 80 per cent of all grains normally used in producing meat, milk and eggs.

Oat supplies indicate that on July 1 we had one of the largest carryovers of oats on record, and estimates point to another near record crop of oats this year—1,741,000,000 bushels, they said.

#### Expect Heavy Carryover

In fact, the oat and corn crops are going to be so big that the feed men warned that the government may be asked to support market prices.

It was pointed out that present reports indicate a record carryover of oats next July 1 and a more than 600,000,000 bushel carryover of corn on October 1, 1947.

"There are only two years on record where the carryover of corn has ever been more than 600,000,000 bushels, and that was during the period when the government was forced to loan money to farmers to hold corn off the market in order to stimulate prices," the statement said.

It also explained that in addition to these large domestic supplies of feed grains, current Canadian crop reports are such as to indicate that Canada may be seeking an outlet for some of her surplus grains in our market.

The feed manufacturers stated that price controls on feeds, feed ingredients, and farm products were unnecessary in the face of bounteous crops, asking that the feed industry be given "an opportunity to aid the livestock and poultry producer in producing the maximum amount of meat, milk and eggs without any handicaps so that the maximum production of these products and the greatest utilization of our available feed supply can be accomplished.

#### Effectiveness of Free Markets

"The unusually large feed supply at hand will increase production of meat, dairy and poultry products, and this production boost will help prevent any inflationary prices on these commodities.

"To a large extent, the American housewife, through her shopping habits, will determine price levels and create the demand which will insure production increases in the commodities she prefers," the AFMA declared. "Only in a free market can the housewife tell us whether she prefers to have increased production in pork, in poultry products, in dairy products, or in beef."

Compared with pre-war statistics, livestock and poultry production in the United States is at a high level. In 1945, for example, milk production was up 14 per cent above the average for the five pre-war years 1937-41, eggs were up 41 per cent, pork up 23 per cent, beef and veal up 37 per cent, lamb and mutton up 11 per cent, and poultry meat up 56 per cent. In recent months the feed shortage necessitated the adjustment of livestock and poultry numbers slightly downward.

"This downward trend can and should be stopped, because the consuming public will utilize the meat, milk and eggs which our large feed supplies will produce," the statement pointed out.


**WRITE US ABOUT YOUR REQUIREMENTS**

**With all hands back on the job, our postwar expansion program is now underway. We plan to offer the finest quality products available for the Dairy, Fountain and Ice Cream Industries.**

**Now supplying our customers with Dairy Syrup, Fountain Syrup, Dipping Chocolate and Ice Cream Flavor.**

**Available soon, Sweetened Orange Drink Base, Chocolate Fudge Topping, and Novelty Coating Chocolate.**

*TWELVE YEARS OF SERVICE TO THE MILK INDUSTRY*

**NOG, INCORPORATED, Dunkirk, N. Y.**

The Association represents the manufacturers who produce the majority of the 30,000,000 tons of scientifically-balanced poultry and livestock rations and supplements made in the U. S. this past year.

### CALIFORNIA FIRM UPS OUTPUT

**Plant Addition to Increase Production More Than Five-Fold**

Berkeley, Cal. (S.J.S.)—Construction of a new $300,000 plant for the South Berkeley Creamery, with facilities to increase the firm's production to five times the present output, will get under way in the immediate future.

The new plant to be built at 47th St. and San Pablo Ave., will replace the present establishment on 58th St. Approval has been granted by the CPA and materials are available.

A two-story building of reinforced concrete will house all new equipment, designed to handle up to 10,000 gallons of milk daily. Larger storage facilities and new offices will be included, and space is provided for eventual installation of a modern fountain restaurant. Surfacing an adjoining lot will provide outdoor parking for distribution equipment.

Operations of the firm will be greatly expanded, the increased production enabling wide extension of delivery routes. For the first time the firm will be able to handle ice cream, in addition to its present lines of dairy products and eggs. Plant operations will be changed from night to day, and new short-time pasteurization equipment will be a feature.

### GOAT BUSINESS GROWS

Columbus, Ohio (S.J.S.)—The goat business is going strong in Ohio. The Ohio milk breeders has climbed from 40 members to 200 in three years and Ohio now ranks third among the states in milk goat raising.

## Research Consolidation

**Exchange of Technical Data to be Accomplished by Packaging Authorities in Britain and U.S.A.**

Consolidation of research facilities between two leading professional associations in Great Britain and the United States was announced when directors of the Packaging Institute voted approval of an exchange of technical research data with the Printing and Allied Trades Research Association, London.

"Patra," as the British group is abbreviated, through its packaging division, maintains laboratories and library facilities to advance Britain's technical studies in all phases of metal, paper, glass, and synthetic materials. A recent grant of the British government will soon see this facility expanded.

The Packaging Institute, comprising approximately four hundred American and Canadian firms manufacturing packaging materials and machinery, including a large number of leading package users, does not maintain its own laboratory, conducting research through committees and advisory boards of both producers and users.

The Viscount Portal heads Patra. Walton D. Lynch, vice-president of National Folding Box Co., is president of the Packaging Institute. Technical committee chairman of the latter organization is Charles A. Southwick, Jr., Shellmar Products Co., of which committee F. S. Leinbach, Riegel Paper Co., is vice chairman, and Dr. Roger V. Wilson, Continental Can Co., Dr. Herbert H. Barnby, Owens-Illinois Glass Co., Carl Hartmann, St. Regis Paper Co., A. F. Wendler, E. I. de Pont de Nemours & Co., John Tindal, Package Machinery Co., A. B. Crowell, Union Paste Co., Carl Prindle, The Dobeckmun Co., W. H. Graebner, Menasha Products Co., Walter T. Ritter, Chicago Carton Co., Glenn Mather, Container Co. division, Continental Can Co., are members.

Patra's research staff is directed by Dr. G. L. Riddell, Fellow of the Royal Institute of Chemistry. Liaison between the two organizations was established last year with the visit here of A. C. Poulter of Patra's staff, and the research exchange negotiated was consummated last week during the visit in England of Lloyd C. Volckening, president, the Ivers-Lee Co., a member of the Institute's directorate.

## *Milk Where Needed*

AMERICAN RED CROSS PHOTO BY GRAY GRAHAM.

Dunkirk, France.—Draining the cup with deep satisfaction this little girl of Dunkirk gets her share of milk donated for 12,000 school children by American Red Cross Civilian War Relief. Steadying the cup is Miss Christine Wright, Red Cross nurse.

### NEW UPSTATE STATION

Newport, N. Y.—Newport Dairies are pushing the construction of their new receiving plant here. When the new unit is finished the Walker Road plant will be closed.

MARWYN DAIRY PRODUCTS

LABORATORY CONTROLLED FOR FINE QUALITY

SWEET CREAM
FROZEN CREAM
PLASTIC CREAM
NONFAT DRY MILK SOLIDS
WHOLE MILK POWDER
BUTTERMILK POWDER

Marwyn Dairy Products Corporation

141 West Jackson Blvd. Chicago 4, Ill.

70 Pine Street
New York 5, N. Y.

111 West Seventh Street
Los Angeles, Calif.

# Air-Borne Cattle

**Pure Bred Animals to Fly Atlantic by Veterans as Nucleus of New Milk Herd in Greece**

Reported to be the first time in history, dairy cattle will cross the Atlantic by plane when a pure bred Jersey bull calf and two heifers will be flown to Athens, Greece on Saturday August 17. Donated by The Borden Company's "County Fair" program, the cattle will be turned over, through the facilities of the Greek War Relief Asociation, to the American Farm School in Greece. There the animals will be prepared for breeding in a long range program to provide new herds of milk-producing cattle.

The aerial route to Athens was decided upon in order to point up the urgency of the need for good animals in Greece. As part of Greek War Relief's "Give an Animal" campaign, arrangements were made with the Veteran's Air Express, a new cargo line composed of Air Force veterans, to bring the cows to the Levant in a four motored plane.

Selected by "County Fair," 18 year old Greek-American lad named Gus Kaloss, from Somerville, New Jersey, will escort the cows and serve as cow-herdsman until their delivery to the Farm School officials. Until the calves reach the breeding age they will be used to instruct farm students in proper animal care and husbandry.

Prominent officials from the American and Greek State departments are exexpected to be on hand when the plane takes off from Newark Airport on the 17th. The following week, August 24, a special short wave broadcast direct from Athens, during the regular broadcast of "County Fair," heard in this country over the facilities of the Columbia Broadcasting System, will describe the plane trip and the reception of the animals in Greece. It is anticipated that on the broadcast . . . which incidentally will be one of the first in some time beamed from the Greek capital . . . government representatives will accept the Borden gift on behalf of their people.

In addition to the "mercy" aspect of the trip, the flight will serve in an exexperimental manner to determine the reaction of cattle to a prolonged trans-Atlantic journey by air. Careful checks will be made on them prior to leaving, during the flight and upon arrival. Special feeds and sanitary details will be given a tryout and a full report turned over to the Jersey Cattle Association.

## STUART PEABODY ADVANCED

**Director of Advertising Becomes Borden Assistant Vice President**

Stuart Peabody, director of advertising of the Borden Company, has been appointed an assistant vice president of

Stuart Peabody

the company, it has been announced by President Theodore G. Montague.

Peabody, who joined the Borden Company in 1924 as advertising manager was appointed director of advertising in 1931. He is a director and member of the executive committee of the Advertising Council, and during the war was council coordinator for advertising promotional activities of the U. S. Treasury Department and the Office of Economic Stabilization. He is past president of the Association of National Advertisers, and chairman of the Advertising Research Foundation.

As assistant vice president Peabody will have executive supervision of Borden's advertising and public relations programs.

## F. W. BOSS DEAD

Chicago, Ill.—Announcement has been made of the death of Fred W. Boss, veteran butter trade member and long manager of the butter department of the H. C. Christians Company, wholesale distributors of butter and eggs with headquarters at 1550 Blue Island Ave. Mr. Boss, widely known among creamery men in the middle west, had been associated with the Christians organization for 33 years, and up until the time of his retirement because of ill health a few years ago he was manager of the Christians butter department. He remained a director of the concern until the time of his death.

Funeral services were held at the St. Giles Catholic Church, Columbian Ave., Oak Park, Ill.

Mr. Boss' many friends and business associates are grieved over his passing.

## ACQUIRES CONTAINER FIRM

John H. Hinman, president of International Paper Company, has announced the purchase by the company of the entire capital stock of Single Service Containers, Inc., paper milk container manufacturers of Philadelphia, Pa., and Kalamazoo, Mich.

The International has been the major supplier of bleached kraft board used by Single Service, and will continue to supply present customers of the acquired company.


DDT

Fly control steps up Milk Production

Phenomenal results in controlling barn flies have been achieved with NEOCID* BA 50, a DDT composition developed by the *Originators of DDT Insecticides.*

NEOCID BA 50 is a wettable powder which is used at the rate of 20 lbs. per 100 gals. of water—and sprayed inside barns at the rate of 1 gal. per 250 sq. ft. every 6 to 8 weeks. This dosage applies in general—follow your local state recommendations.

NEOCID BA 50 *will control flies for you.* For special news release on results, write:

*Reg. U.S. Pat. Off.

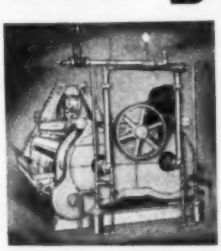
GEIGY COMPANY, INC. 89 Barclay Street New York 8, N. Y.

Geigy

*Better* DRY MILK AT LOWER COST

DRY MILK MACHINES

Built in Five Sizes



The patented, glass-smooth, "20-year cylinders" give years and years of maximum production of a superior dry milk at the lowest possible cost.

Many other exclusive features insure long life with low steam and power costs.

*Complete details upon request.*

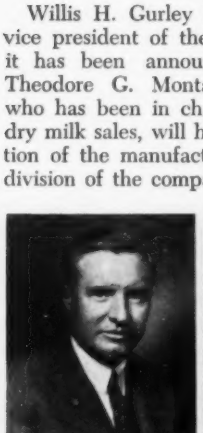
OVERTON MACHINE COMPANY

DOWAGIAC MICHIGAN

# New Borden V. P.s

**W. H. Gurley and W. F. Leicester Elected to New Posts—Long Experienced in Dairy Products Field**

Willis H. Gurley has been elected a vice president of the Borden Company, it has been announced by President Theodore G. Montague. Mr. Gurley, who has been in charge of exports and dry milk sales, will have executive direction of the manufactured milk products division of the company.



W. H. Gurley

W. F. Leicester

Mr. Gurley joined Borden's in 1928, when the company acquired Merrell-Soule Company, and was in charge of export sales. He was responsible for the introduction of KLIM, powdered whole milk, to the foreign markets. In 1944, Mr. Gurley was appointed an assistant vice president of Borden's in charge of dry milk sales and the export division.

W. F. Leicester has also been elected a vice president of the Borden Company. Leicester, who is president of the company's Casein Company of American Division, will have executive supervision of adhesives, including casein, and related activities.

Mr. Leicester was born and educated in England. He has been in the glue business in this country since 1920 and has had a leading part in the development of the casein glue industry. This industry was established during World War I to supply glue for wood airplanes.

In 1923 he took charge of the glue division of the Casein Company of America, which became a division of the Borden Company in 1929. In 1944 he was appointed president of the Casein Company of America.

## SUFFICIENT SHIPPING CANS

**Availability of Metals Ample for Production of 1½ Million Containers**

The Civilian Production Administration has assured producers of fluid milk shipping containers that sufficient materials would be available to them to maintain production of these containers at the current annual rate of 1,500,000 units.

This rate is approximately the amount needed to meet the replacement demand based on an indicated average eight-year life for such containers, the agency said.

At a meeting of the Fluid Milk Shipping Containers Industry Advisory Committee, Arthur Maupin, chief of CPA's tin section, said that approximately 1,250,000 pounds of pig tin has been made available for the next 12 months under the present provisions of the tin order (M-43) to maintain the 1,500,000 production rate.

The availability of steel sheets may present a problem to these producers during the next two months, CPA said, because of the impact of the recent steel order (Direction 12 to M-21) which gives preference on steel mill schedules, during the third quarter of 1946, to steel requirements for housing and farm machinery.

Industry men referred to the recent CPA action establishing steel priorities for certain types of farm equipment. Emphasizing that milk production is of equal importance to that of other farm products, the committee strongly urged that milk container producers also be allowed to obtain priority on steel mill schedules for their requirements.

CPA representatives pointed out, however, that the milk container supply appears to be adequate and that any expansion of the permitted priority list on steel would flood the steel mills with priorities and nullify the effect of present plans to increase housing construction and farm machinery production during the third quarter of 1946.

Representatives of the Office of International Trade, Department of Commerce, indicated that export requirements for bulk milk containers to meet the foreign relief program would be about 135,000 units, or approximately eight per cent of total production. Tin requirements for this program are included in the 1,250,000 pounds of tin set aside for this milk container program, CPA said.

## W. M. OGDEN ADVANCED

**Becomes Sales Manager of Choice Foods, Inc., in Michigan**

W. M. Ogden, recently appointed sales manager of Choice Foods, Inc., Centerline, Michigan, will be in charge of all sales and merchandising activities for this company.

W. M. Ogden

Formerly sales promotion manager, Ogden has been associated with Choice Foods for the past eleven years. He is remembered by many Eastern dealers for his inspirational and illuminating sales talks to their sales and delivery organizations.

Choice Foods is at present manufacturing a product known as Solco, a malt-chocolate flavored food drink distributed through fresh-milk dairies. The company enjoys national distribution with sixteen states handled by direct representation and the remainder through jobbers.


**ABELN**
**DAIRY PRODUCTS CO.**
**BROKERS**

*Cream • Sweetened Condensed*
*Spray Milk Powder • Roller Milk Powder*
*Concentrated Milk*

624 S. MICHIGAN AVE., CHICAGO 5, ILL.
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*Try Our . . . .*
**Monday Night Statistical Review**
**A Careful Analytical Study of the position of Butter, Eggs and Dressed Poultry.....**
***By mail or by wire .... write for sample copy***
**Urner-Barry Company, Publishers**
**173 Chambers Street New York, N. Y.**

# Classified Advertising

**RATES: "Position Wanted," 50c. Limit of 50 words; 2c for each additional word. All other advertisements, 5c a word ($1.00 minimum). Keyed ads, 15c extra to cover return postage. The name and address should be included in counting the words.**

**All payments strictly in advance.**

## POSITION WANTED

MANAGER with 14 years experience in Milk and Ice Cream plant. Also can repair plant machinery. Married, age 33. Best of references. Box 327, care this publication. 8-M

AS CREAMERY FOREMAN — Several years experience. Understand pasteurizing, standardizing, test milk and cream. Make homogenized milk and commercial sour cream buttermilk. Can operate homogenizer, make all minor repairs on plant machinery. Willing to come on two weeks or more try out. Box 320, care this publication. 8-M

WANTED—Dairy Expert would like to contact company in need of foreman or production manager. Can produce finest grade of ice cream, cultured buttermilk, cottage cheese, market milk, everything produced by leading dairies. Will consider any plant regardless of size. Box 324, care this publication. 8-M

## HELP WANTED

EXPERIENCED Working Superintendent for small, modern milk bottling and ice cream plant in Michigan. Must be all-round man, experienced in pasteurization and standardization, manufacture of cottage cheese, buttermilk and ice cream mix and understand machinery and ammonia refrigeration. Give age, experience, schooling, other pertinent information and salary expected. Permanent position. Box 329, care this publication. 8-M

EXPERIENCED working foreman wanted. Bottling 2,500 quarts milk—by-products. Knowledge of machinery. State salary, references, how soon available. Pilfour Dairy, Neshanic, N. J. 8-MBP

EXPERIENCED and capable man for the making of cottage cheese and butter, pasteurization, testing, receiving milk and in supervising help. Married man preferred. State age, training and salary desired in first letter. Box 318, care this publication. 8-MB

**WANTED — Manager for receiving plant located New York State. Must understand New York City health regulations. Box 323, care this publication. 8-MB-2**

## FARM FOR SALE

FOR SALE—Five acres land, all in corral; large creamery, capacity 5,000 gallons; large office and dwelling; two routes; truck, cases and bottles; barn for 60 cows; two large silos; 90 cows and 2 bulls. Mrs. Bernadine Creton, Blue Bird Dairy, Rt. 5, Box 356, West Riverside, Cal. 8-M

## WANTED

SKIM MILK WANTED FOR CHEESE MAKING. LONG TERM PROPOSITION. WRITE BOX 328, CARE THIS PUBLICATION. 8-M-5

## LABORATORY SERVICE

DAIRY PRODUCTS LABORATORY—Chemical and Bacteriological Analyses. Consultations. Ice Cream formulae. C. Vilenchitz, 82-31 60th Road, Elmhurst, L. I., N. Y. (New York State Licenses B. O. 4801, E. O. 518.) 8-M-2

## CURD WANTED

**WANTED—Part Skim Curd for the Italian Trade. Attractive and Permanent. Also Fresh Whey Cheese. Address Box 326, care this publication. 8-M-t.f.**

## BOTTLE CRATES FOR SALE

USED BOTTLE crates $1.00 f.o.b. Cleveland, Ohio. Extra charge for defacing old name and branding your name. Write or phone for present day inventory. Ohio Creamery Supply Co., 701 Woodland Ave., Cleveland, Ohio. 8-M-t.f.

## CREAMERY FOR SALE

FOR SALE—South Central Minnesota Creamery. Have good volume of business, machinery and buildings are in good condition. Good territory, have increased production here every year for the past six years. Please do not answer unless you intend to buy. Box 322, care this publication. 8-M

## EQUIPMENT WANTED

WANTED—Deep well water pump, turbine type—100 gallons or more per minute. Please give full details in letter. Box 319, care this publication. 8-M

WANTED—A good used viscolizer or homogenizer. Give size, make, price and condition in first letter. Box 321, care this publication. 8-M

## DAIRY PLANT FOR SALE

MODERN DAIRY PLANT—Sold $180,000 milk last year and now doing $19,000 month—140 head fine cows, modern dairy barns, will net $25,000 this year. Priced at $65,000 with $30,000 cash. Real Estate Service Company, 1730 Candler Bldg., Atlanta 3, Georgia. 8-M

## BOTTLE CASES WANTED

WE ARE INTERESTED in purchasing a quantity of Quart, Pint and Half-Pint Cases. Send full particulars stating quantity, condition and price. Box 325, care this publication. 8-M-t.f.

## FOR SALE

BRILLIANT ALUMINUM PAINT. Sanitary long lasting finish. Save money. Buy direct $2.59 gallon in 55 gallon drums. $2.69 gallon in 5 gallon cans. Paint Specialties Co., 317 Third Ave., Pittsburgh 22, Pa. 8-M

## EQUIPMENT FOR SALE

FOR SALE—One 275-lb. Vane Butter churn—Price $150.00. United Dairy Farmers, 3955 Main Ave., Norwood 12, Ohio. Phone: Me. 3385. 8-M

FOR SALE—One used Roger copper 5 foot vacuum pan. Box 317, care this publication. 8-M

FOR SALE—Used equipment. Stamsvick Milk Filters, Model 12D, stainless steel shells, etc., special alloy plates, capacity 12M lbs. per hour each unit. Karsten Dairies, Inc., 2338 Hermany Ave., New York 61, N. Y. Phone: Underhill 3-4835. 8-MB

FOR SALE—Butter churn used ninety days. Cherry-Burrell, 7½ h.p. motor—1400 lbs. capacity. Also several cutters. Parkville Dairy, Parkville, Mo. 8-M

FOR SALE—One Peerless No. 6 S Filter made by Wisner Mfg. Co. Approximately 2000 lbs. per hour. Perfect condition, $125. Cashin's Dairy Products, Waterbury, Conn. 8-M

FOR SALE—800 gals. capacity Pfaudler holding system, automatic controlled, consisting of four 200 gals. each glass-lined vats, three vacuum pumps and blower, three 5 h.p. motors, 3 phase, 60 cycle, and one surge tank system, complete. Also Wisner No. 12 Filter for hot milk. Penn Dairies, Inc., York, Pa. 8-M-2

FOR SALE—Erie City Economic Boiler 30 H. P., operating daily—good order. Coal Stoker. Complete with all automatic controls. Ready to move out and into your place without purchasing anything additional. Price $1,600. Finger Lakes Honey Producers Co-operative, Inc., 206 W. South St., Groton, N. Y. 8-M-t.f.

FOR SALE—One double effect copper evaporator with copper hotwells, barometric condenser, dry vacuum pump, structural steel and platforms and all piping. Can be operated as single or double effect, with the second effect separator body seven feet in diameter for batch operation. Total heating surface 450 square feet, capable of evaporating 20,000 lbs.—2:1 milk per hour. Available now. Otto Biefeld Co., Watertown, Wis. 8-M

FOR SALE—Five 3000 lb. copper hot wells; two 1000 gallon horizontal coil pasteurizers, stainless steel lined, motor driven

KURLY KATE
Metal Sponge
for use in 1. DAIRIES 2. CANNERIES 3. RESTAURANTS 4. FACTORIES
all types of industrial cleaning
ORDER FROM YOUR JOBBER OR WRITE DIRECT
KURLY KATE
METAL SPONGES
Designed especially for cleaning all types of dairy equipment and utensils. Will not rust or splinter, cut the hands or injure metal or plated surfaces. Kurly Kate Metal Sponges are fast working, easy to use, and easy to keep clean. Made in STAINLESS STEEL, NICKEL SILVER and BRONZE.
KURLY KATE CORPORATION
2215 S. MICHIGAN AVE. CHICAGO 16, ILL.

with motors; one insulated stainless steel truck tank, approximate capacity 6000 lbs.; vertical glass lined, jacketed drop tank; 5½'x5½', capacity approximately 800 gallons and two 5400 gallon gasoline tanks 7'8"x14'9"; small 6' copper vacuum pan with condenser. Used equipment, good shape, priced to sell. Otto Biefeld Company, Watertown, Wis. 8-M

FOR SALE—100 gallon Fort Wayne Stainless Steel Lined Pasteurizer; 200 gallon Cherry-Burrell old style nickel lined spray pasteurizer; 6 ft. Kaestner Box Tube Heater, 14—1 in. Inconel tubes; Type "B", "J" and "L" Milwaukee Fillers; 4, 6 and 8 Wide Soaker Type Bottle Washers; 5 ft. 24 tube, 6 ft. 40 tube and 9 ft. 16 tube Combination Direct Expansion Surface Coolers; 12 ft. York Internal Tubular Direct Expansion Cooler having 20—1½ in. Inconel Tubes; 4 ft. 24 tube, 5 ft. 24 tube, and 6 ft. 14 tube Surface Coolers for brine or water; 2 Cherry-Burrell Jr. Cabinet Coolers, 4 and 7 wings; No. 55 Waukesha Pump, variable speed drive; 12,000 lb. Peerless and Cherry Stainless Steel Filters; Single and Two Compartment T. C. Weigh Cans; Rotary Can Washer, 6 C.P.M.; McKinley Straitaway Can Washer, 6 to 8 C.P.M.; No. E-17 and 60 De Laval Motor Driven, also Nos. 37, 61 and 91 De Laval Steam Driven Separators; Bronze Head Homogenizers and Viscolizers ranging in sizes from 50 to 450 gallon capacity; 3 ft. Rogers Copper Vacuum Pan. Write or wire your requirements. Lester Kehoe Machinery Corporation, 1 East 42nd St., New York 17, N. Y. 8-M

FOR SALE — One 200 gallon Cherry-Burrell spray pasteurizer complete; two 3 h.p. Baker New Automatic Freon Compressors; Jensen fan type cooler, tinned copper, 8 sections, aluminum covers, 14,000 lbs. per hour pasteurized, 20,000 lbs. raw milk; Type "J" Milwaukee automatic filler and capper; one Type "B" filler and capper, hand operated; one Chilly King cream cooler; one 100 gallon stainless steel pasteurizer, complete; one 3 h. p. compressor, complete; hand operated sour cream filler and hand capper; 300 gallon glass lined pasteurizer, complete; one shell and tube brine cooler, 24—2 in. tubes, 8 ft. long, 18 in. diameter, 7 passes, capacity 10 tons; 1,000 lb. dial type Toledo suspension scale; bottle or can cover sterilizer, capacity 500 quart bottles; Model 90 Mojonnier milk bottle filler and capper; 1 Bagby automatic sour cream filler and capper; 1 Riley-Jones heavy duty new stoker; 1 Champion ice crusher, motor driven with motor; stainless steel truck tanks—1,650 semi-oval, 1,700, 2,250 round, 2,850, 3,160, 3,170 3,200, 3,300 gallon ovel; sanitary milk, also water pumps, steam driven, all sizes; Meyer Dumore 8 wide Sr. bottle washer, just rebuilt, will wash square and round bottles; 250 gallon homogenizer, bronze head with motor; 200, 500, 600 gallon New York City approved viscolizers and homogenizers, stainless steel; 1,500 half-pint cases, 30 to the case, built pint size for good icing; 5,000 quart cases; one separator parts sterilizer; McKinley straightaway can washers with cover replacer, one 6 to 8, one 8 to 10 per minute; one Braun straightaway can washer, 3 to 4 per minute; 1 Lathrop-Paulson rotary can washer, 3 to 4 per minute; Mojonnier over-run tester; one 1,200 lb. Vane butter churn, practically new, motor driven; two Von Gunten white metal milk filters, 12,000 lbs. each; one Peerless milk filter, drum type, 6,500 lbs.; one Stamsvick stainless steel cold milk filter, 15,000 lbs. per hour; 16 Dole cold plates, 30x72 in., 22 plates, 54x30 in.; one tinned copper surface cooler, 3 section, 28—2 in. tubes, in all 12 ft. long; roller covers and catwalk; one 600 gallon, one 1000 gallon cheese vats. Sam Edelmann, 321 Broadway, New York 7, N. Y. WOrth 2-4975. 8-M

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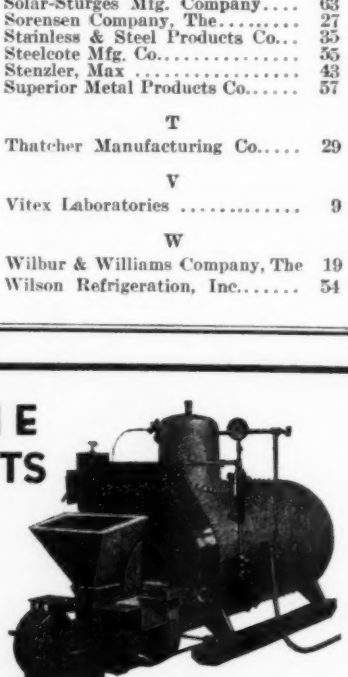
# LEFFEL SCOTCH MARINE BOILER AND STOKER UNITS

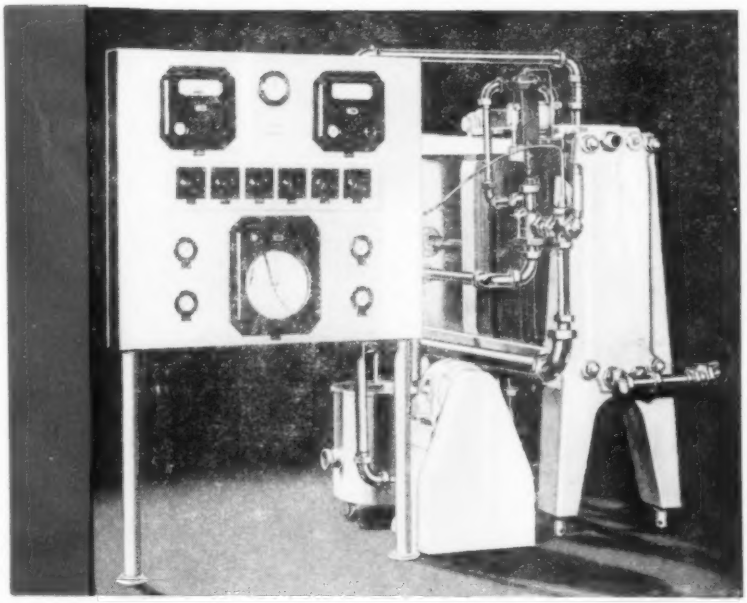


This is the Only Complete, Self Contained, Scotch Marine Boiler and Stoker Unit of Its Kind on the Market, Built by One Company, and Affording the User Undivided Responsibility, Greater Efficiency, Increased Capacity, Smokeless Combination. Built in Sizes 12 to 250 H.P. Our Stoker Adapted for Other Makes of Scotch Boilers.

**THE JAMES LEFFEL & CO.** Established 1862 **Springfield, Ohio**

See Leffel Boiler Ad on Page 46 Dept. MR

# *tough customers preferred!*



***Superplate Shortime High Temperature Pasteurizer (Model J. Press)***
*Capacity—6,000 lbs. per hour. Can be economically increased to 14,000 lbs. per hour without loss of original investment. Larger and smaller systems available.*

■ The Superplate Shortime Pasteurizer has some mighty tough customers to please . . . plant operators and the consumers of their products. And it pleases them, too—plant operators who expect efficiency and economy . . . customers who expect milk and milk products to have a rich, natural flavor.

Superplate's special design speeds up operation—*cool pasteurized milk can be ready for bottling 5 minutes after the start-up!* Accurate temperature control . . . easy cleaning . . . low water, steam and refrigeration costs . . . compact design—these are among many extra advantages offered by the Cherry-Burrell Superplate Shortime Pasteurizer. Get the full story from your Cherry-Burrell man and plan for the day when your plant and customers can benefit from this star performer.

**CHERRY-BURRELL CORPORATION**

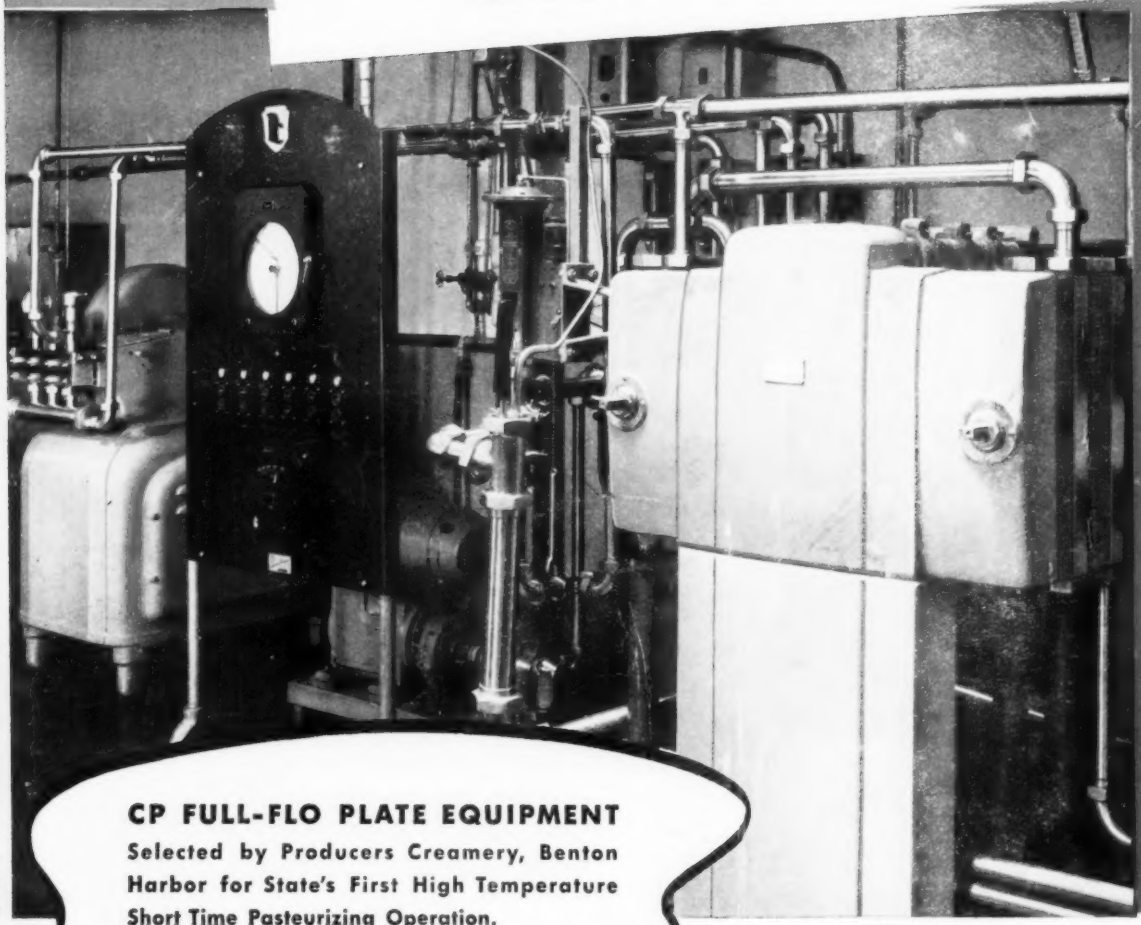
**427 West Randolph Street, Chicago 6, Illinois**

*Equipment and Supplies for Handling Milk and Its Products*

**FACTORIES, WAREHOUSES, BRANCHES, OFFICES OR DISTRIBUTORS AT YOUR SERVICE IN 52 CITIES**

GEARED TO SERVE THE DAIRY INDUSTRY

# Michigan Joins the Swing to HTST PASTEURIZATION



**In Photo**
CP Multi-Flo Homogenizer, CP Control Panel, and CP Full-Flo Plate Unit.

**CP FULL-FLO PLATE EQUIPMENT**
**Selected by Producers Creamery, Benton Harbor for State's First High Temperature Short Time Pasteurizing Operation.**

Creamery Package is proud to have been selected by Producers Creamery to cooperate in the engineering of their modernization program, and to supply the major equipment.

The new CP Full-Flo Plate Equipment . . . which replaces a CP Precision Tank Holding System . . . handles 7000 lbs. of milk per hour. It does the complete job of heating, cooling, regeneration, and HTST pasteurization...with important savings on fuel, refrigeration and labor. Write for Bulletin E-5.

*Creamery Package*

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